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MOTOR AGE

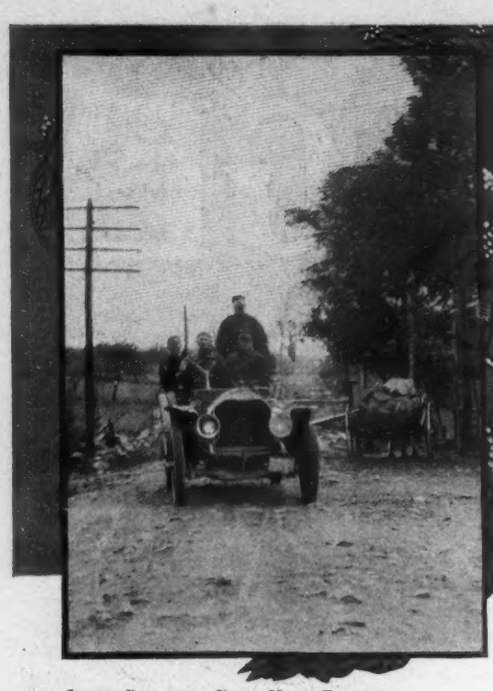
NONE PERFECT IN NORRISTOWN RELIABILITY

NORRISTOWN, PA., May 21.—After 48 hours' work on the twenty cars which were submitted at the finish of the third annual endurance run to Scranton and return the technical committee of the Norristown Automobile Club early this evening announced the Selden, No. 23, driven by Charles Youngs, as the winner in class A with a penalization of 38 points; Maxwell, No. 9, Harry E. Walls, driver, the class B winner, with 26 points; Pullman, No. 19, with H. P. Hardesty at the wheel, the successful one in class C, with 49 points, and the Klinekar, No. 30, driver by C. C. Fairlamb, the leader in the race for class D honors, with 70 demerits. In the membership division Selden, No. 34, driven by Fred Dyer, led with but 2 points against it. This class was not compelled to undergo a technical examination.

The run was an especially severe test, as may be gathered from the statement that on the first day twenty-five of the thirty-six cars that were classed as contestants were penalized, most of the demerits being due to lateness at controls or to mechanical defects developed by the hard usage to which the drivers necessarily subjected their cars in the effort to adhere to the schedule. The 20-miles-an-hour schedule was particularly severe on the class D cars —$1,600-and-under runabouts—all of the nine contestants suffering penalization. The road conditions on the first day were generally bad, an intermittent rain falling throughout the day, which, with a steady downpour during the previous night, rendered the roads, especially in the mountains, decidedly unsafe for a 20-mile schedule. This fact was borne in upon the committee at the last intermediate control of the day—Wilkes-Barre—1 hour 10 minutes being allowed for the 18.6-mile leg—and the reduction was needed, for the roads between the two cities were frightful. Low and intermediate gear work were necessary on a large proportion of the Pottsville-Hazleton and the Hazleton-Wilkes-Barre legs, and when a good stretch of road was encountered it was usually so slippery that great care was necessary in negotiating it. When the fine state road leading over the moun-

Climbing Giant's Despair, Wilkes-Barre

Klinekar, One of the Class Winners



INTER-STATE ON ROAD NEAR READING

SELDEN WINNER IN CLASS A WITH 38 POINTS AGAINST IT

tains from Fairview to Wilkes-Barre was reached the contestants naturally hit it up in order to make up the time they had lost, and several nasty accidents were narrowly averted.

Palmer-Singer, No. 16, George Parker, driver, was crowded to the outside while passing another car on a sharp curve and swung into the iron fence protecting the road; it hung for a while over a 90-foot ravine until the crew could get it back onto the road. That little incident cost the car 117 road points all told, not to mention a large proportion of the 59 demerits imposed by the technical committee. Inter-State, No. 6, driven by D. F. Templeton, also was a heavy sufferer on the first day, garnering 52 bad marks from a skid into a wagon near Reading. Black Crow, No. 29, tore off its right rear fender in a peculiar manner. A tire chain broke and wrapped around the fender support, breaking it and tearing away the fender. The time lost as a result was so great that the car was later withdrawn. Several other cars, which had suffered heavily from time and work penalization the first day, also were withdrawn, but continued to the finish unofficially.

The official cars had troubles of their own which do not appear in the record. The checkers were sent out at 4 a. m. in an Autocar wagon. With solid tires and its heavy load it found great difficulty in negotiating the mountains, with the result that the contestants began to pick it up beyond Hazleton. The pacemakers' car, Earl Wentz's Lozier, which was hurried ahead to place temporary checkers on the job, was stranded in the mud near Middleport, but the chief checker commandeered the first contesting car that came along, and after appointing a substitute at Hazleton, hastened ahead. Unfortunately, however, the substitute lost his bearings, so the committee that night decided to take the observer's cards data for the Hazleton control. The confetti car, a White steamer, was picked up by the leaders a few miles below Pottstown, and the contestants were compelled to go by the book for the remainder of the journey.

Just to show how little things count—the Regal, No. 5, Frank Hosmer, driver, broke the steel hook which held its fan belt together. The loss was not noticed until the radiator water began to boil. The

DETAILED SUMMARY OF THE RESULTS IN THE 3-DAY RELIABILITY RUN

No.	Name of Car	H. P.	Cylinder	Cylinder Bore	Piston Stroke	Car Model
						DIVISION
						CLASS A—TOURING CARS,
1	Pullman	35	4	4½	4¾	1910-K
2	Pullman	35	4	4½	4¾	1910-K
23	Selden	36	4	4¾	5	1910
13	Franklin	28	4	4¼	4	D-1910
3	Matheson	45-50	4	5	5½	1909
4	Klinekar	40	6	4 3-32	5	1910
						CLASS B—TOURING CARS,
5	Regal-Detroit	30	4	4	4	E-1910
6	Inter-State	40	4	4½	5	1910
7	Enger	40	4	4½	5	No. 40
8	Regal	30	4	4	4	B-1910
9	Maxwell	30	4	4¼	4¼	1910-E
10	Ford	18	4	3¾	4	T
11	Buick	30	4	4½	5	16-1910
12	Inter-State	40	4	4½	5	1910
						CLASS C—RUNABOUTS,
14	Alco	60	6	4¾	5½	1910
15	Jackson	50	4	4¾	4¾	1910
16	Palmer-Singer	60	6	4⅞	5½	1909
17	Knox	38	4	4⅞	4¾	1909-O
18	Premier	40	4	4½	5¼	4-40
19	Pullman	40	4	5	5¼	4-40
20	Klinekar	40	6	4 3-32	5	Meteor 1910
						CLASS D—RUNABOUTS,
21	Warren-Detroit	30	4	4	4½	10-A
22	Mitchell	30	4	4¼	5	R
24	Ford	18	4	3¾	4	T
25	Ford	20	4	3¾	4	T
26	Overland	25	4	3¾	4½	No. 38
27	Maxwell	28.9	2	4¼	4¼	G
28	Parry	36.4	4	4½	4½	32-36
29	Black Crow	25	4	3⅞	4½	C
30	Klinekar	24	4	3¾	4¼	1910
						DIVISION NO. 2
						MEMBERSHIP
31	American Traveler	...	...	...	...	....
32	Cadillac	...	...	...	...	....
33	Overland	...	...	...	...	....
34	Selden	...	...	...	...	....
35	Inter-State	...	...	...	...	....
36	Chalmers	...	...	...	...	....
37	Pierce-Arrow	...	...	...	...	....
						*CLASS B—
38	Packard	...	...	...	...	....
39	Inter-State	...	...	...	...	....
40	Buick	...	...	...	...	....
41	Flanders	...	...	...	...	....
42	E-M-F 30	...	...	...	...	....
43	Pennsylvania	...	...	...	...	....

* Cars in these classes not examined technically

SOME OF THE GOING ENCOUNTERED BY THE NORRISTOWN CONTESTANTS

OTHER ROADS WERE DIFFERENT

time consumed in cooling the engine off and improvising a belt fastening out of wire threw the car so far back that it was withdrawn, but continued unofficially to the finish.

The conditions on the record day were just the reverse of those on the first—clear, warm, sunny weather and good roads, and every one was in good spirits because of the sunshine.

While, apart from the stiff schedule, there were few complaints from contestants for the imposition of such liberal penalties on the road, the same cannot be said of the aftermath of the brake and clutch tests and the technical examination, especially of the former. An examination of the penalty table shows that fully 50 per cent of the total demerits were imposed during the brake and clutch test. The Franklin No. 13 accumulated 87 per cent of its entire penalization through this medium. But one trial was allowed. Kline, No. 20's, 59 demerits were 80 per cent brake-and-clutch; the car slipped along with locked wheels. Same way with Buick, No. 11, and Kline, No. 4, and several others of the clean-road-score cars. Harry Walls, who won the class B cup with his Maxwell, studied out the situation, and his brake test cost him but 1 point. One hundred yards from the starting line he was traveling at a 35-mile clip, and by the time he reached the line he had reduced this to a trifle over 20 miles an hour, but was slowing down rapidly; by this means only was he enabled to stop short 7 inches beyond the 50-foot mark. It won him the cup, too, for his nearest competitor, the Buick, No. 11, which received but 12 technical demerits as against the Maxwell's 25, was punished to the extent of 48 points in the brake test.

Every car submitted to the technical committee for examination suffered more or less severely, as was to have been expected, under the conditions. Franklin, No. 13, with 7 points, passed the best examination, followed by the Inter-State, No. 6, with 10; Kline, No. 20, and Buick, No. 11, with 12; Kline, No. 4, with 16, and Enger, No. 7, with 18. All the remainder were over the 30 mark, with the exception of Wall's winning Maxwell, in class B, which escaped with 25. Loose and broken bolts and broken spring leaves were particularly numerous.

OF MOTOR CLUB OF NORRISTOWN IN WHICH NONE HAD A PERFECT SCORE

NO. 1

$2,001 AND OVER

Entrant	Driver	PENALTIES: Road Work First Day	Road Work Second Day	Broken Clutch	Tech.	Total	Order of Finish
Longstreth Motor Car Co.	A. H. Betner	0	0	29	51	80	4
Pullman Motor Car Co.	Norman Gallatin	0	0	50	49	99	5
Selden Car Co. of Pennsylvania	Charles Youngs	8	0	16	14	38	1
H. H. Franklin Motor Car Co.	John Burns	0	0	47	7	54	3
Norris City Garage	Allen D. Hall	Withdrawn					6
B. C. K. Motor Co.	Robert L. Morton	0	0	28	16	44	2

$2,000 AND UNDER

T. M. Twining	Frank Hosmer	Withdrawn					
Norris City Garage	D. F. Templeton	52	2	10	10	74	4
Enger Motor Car Co.	H. L. Brownback	9	2	86	18	115	5
Joseph Coulston	Joseph Coulston	Withdrawn					6
Maxwell-Briscoe Phila. Co.	H. E. Walls	0	0	1	25	26	1
Keystone Auto Supply Co.	J. A. Cherry	36	0		Withdrawn		7
Buick Motor Co., Philadelphia	T. Wilkie	0	0	48	12	60	2
Inter-State Auto Co.	W. W. Vandergrift	0	0	29	38	67	3

$1,601 AND OVER

Longstreth Motor Car Co.	W. C. Longstreth	0	0	9	63	72	3
Brown Auto Top Co.	Ira L. Brown	Withdrawn					6
Palmer-Singer Distributing Co.	George P. Parker	117	0	56	59	232	5
E. C. Meier	Frank Gamble	Withdrawn					7
Norris City Garage	W. G. Dyer	0	0	81	50	131	4
Pullman Motor Car Co.	H. P. Hardesty	0	0	18	31	49	1
B. C. K. Motor Co.	J. A. Kline	0	0	47	12	59	2

$1,600 AND UNDER

Taylor Motor Distributing Co.	Tom Berger	Withdrawn					
Robert A. Jackson	Robert A. Jackson	12	0	88	28	128	4
Keystone Auto Supply Co.	John Leonard	11	38	18	75	142	5
G. S. Wrightnour	Louis C. Block	Withdrawn					6
Norris City Garage	D. McDermott	4	1	31	38	74	2
Maxwell-Briscoe Phila. Co.	A. D. Rea	11	0	42	43	96	3
Keystone Auto Supply Co.	Donald Stroud	Withdrawn					7
Mercury Auto Co.	Charles C. Blind	Withdrawn					8
B. C. K. Motor Co.	C. C. Fairlamb	9	4	33	24	70	1

*CLASS A—

CONTESTANTS

John Mountain	John Mountain	Did not start					
J. Ellwood Lee	J. Ellwood Lee	22	0	..	..	22	3
W. H. Detwiler	W. H. Detwiler	Withdrawn					4
Fred Dyer	Fred Dyer	2	0	..	..	2	1
Clement Eckrode	Clement Eckrode	Withdrawn					5
W. Guy Miller	W. Guy Miller	Withdrawn					6
P. V. Hoy	P. V. Hoy	14	0	..	..	14	2

NON-CONTESTANTS

J. F. Boyer	William Thompson	..	..	..	..	..	..
F. R. Heavner	F. R. Heavner	..	..	..	..	..	..
T. V. Smith	T. V. Smith	..	..	..	..	..	..
Norman Cassell	Norman Cassell	..	..	..	..	..	..
W. R. Gordon	W. R. Gordon	..	..	..	..	..	..
J. Ellwood Lee Co.	Alonzo Mancil	..	..	..	..	..	..

Five Hartford Winners

Franklin 1
Franklin 8

Regal 13
Overland 16

Columbia—Perfect Score

AUBURN—PERFECT ROAD SCORE

REO CONTESTANT EN ROUTE

HARTFORD, Conn., May 23—Traveling about 200 miles a day for 3 days, over roads that ran the entire gamut of road-making possibility, the cars entered in the all-Connecticut reliability run, under the auspices of the Automobile Club of Hartford, were given a test that measures up closely in severity with the Glidden tour. The run only occupied 3 days, but if there is anything in the way of running conditions that was overlooked in selecting the routes, the fact did not develop.

The results were remarkable in that of the five class winners only one, the Franklin, was penalized for road work; three were demerited in the technical examination, while only one, the Columbia, went through both tests with perfect scores. The winners were: Class 2A, No. 22 Overland, 16 points penalization; class 3A, No. 4 Regal, 13; class 4A, No. 3 Franklin, 8; class 5A, No. 16 Columbia, perfect; class 6A, No. 10 Franklin, 1.

The principle upon which the courses were picked out was to afford a journey over roads that would prove the worth of any car that could pass over them. This does not mean that the roads were all bad—far from it, for there were stretches as long as 50 miles en route that cannot be excelled for smoothness, straightness and general excellence. But on the other hand, part of the route was laid out in the skyline of the Connecticut hills, over roads that seemed to have been broken through the forest the week before for the purpose of giving the cars a few entirely new wrenches.

The entries numbered twenty-two, but the Tiley and the Pierce-Racine were withdrawn. The pilot car was a six-cylinder Columbia, an experimental car driven by its designer, Charles E. Reddig. It left Hartford at 4 o'clock each morning, 2 hours in advance of the regular contestants and distributed confetti along the roads. The others started in two class, commencing at 6 o'clock and 6:30, respectively. The two divisions listed at the smaller figures started first.

The first day's trip was about as trying to cars and drivers as it is possible for human ingenuity to devise. There were stretches of highway here and there, but up in the northwestern corner of the state the hills and the mud and broken roads gave the cars a terrific trial.

SPEEDWELL—PERFECT IN TECHNICAL TEST

The two Cartercars were the first to succumb, as their gasoline tanks were emptied before the noon control at Torrington was reached. Neither of them had developed any structural or mechanical troubles to this point and as soon as the Standard Oil tank wagons hove in sight they both put on speed and checked in after the other cars. From Torrington the roads were superlatively bad clear past New Milford, but from that point they were generally good to Hartford. Nine cars finished the day with clean road scores. The first day covered the northwestern part of the state in a big loop that extended nearly to the New York and Massachusetts lines, and was 207.8 miles.

The second day's run was over some of the best and a little of the worst going in the state. It went southwestward through Danbury and Norwalk, touched Bridgeport at noon control and trended back to Hartford by the way of New Haven, Old Saybrook and the Connecticut River road. The finest bits of this route were the Berlin pike, a remarkable highway in a dozen different

ways, and a bit of impromptu mountain-climbing between Waterbury and the Housatonic river.

Four of the cars that had perfect road scores the first day were penalized during this run and the terrific racking the cars received the first day began to show on the surface in a few instances. But all told the day was far better in the matter of scores than the preceding day had been, for eleven cars received no black marks. The Corbin entry and the Reo suffered most, the first with carbureter troubles and the other with one of its petcocks.

The third day's course was over the eastern part of the state, passing through New London and Woodstock to Willimantic, where the noon control was welcomed after 120 miles of exceedingly difficult going. From Willimantic the route was northwestward to Thompsonville and thence to Hartford a total of 191.4 miles.

CHALMERS IS THE OFFICIALS' CAR

Of the cars that had clean road scores during the first 2 days, the Franklin No. 3 was the only one to be penalized for road work on the final day's run. The Columbia 16, Auburn 14, Franklin 10 and the Lexington went through the whole tour without a mark against them for road work.

The technical examination brought out many penalties, as the examination was particularly severe. The clutch and brake tests broke several perfect scores and the final measurements and tests added materially to the list of penalization.

The Columbia entry in class 5A had a clean score on the road and scored perfect in the final tests. The Franklin No. 10 in class 6A was perfect in road work, but was penalized a single point by the technical committee, while the Speedwell No. 15 and the National No. 8 only suffered 3 and 4 points for their road work and scored perfect under the technical tests. Both were in division 5A. The showing of the Regal No. 4 was creditable, with only 13 points charged against it. Ten of these were for troubles on the road that had no bearing on mechanical or structural weakness, and the other three were levied by the technical committee.

Fully 100 miles of the route had been specially prepared for the run just before the start, and in some instances the pilot car passed the oil wagons engaged in sprinkling the highways. There were half a dozen hills where the grade ranged from 12 to 20 per cent for short stretches, and one long declivity near Torrington was as perfect a set of bump the bumps as one would care to traverse in anything short of an aeroplane. In motor cars the bumps were most prominent.

Acting with the Automobile Club of Hartford in this event were the clubs of Litchfield county, Bridgeport, New Haven, Willimantic and New Britain. Officials of these clubs acted as checkers and reception committees at various points along the road.

After the first day's run an unusual entertainment was held in the clubrooms of the organization at Hartford, when the club acted as host to the contestants at a smoker. The feature of the affair was the presence of the selectmen and grange leaders of Hartford county and their hearty accord with the motorists on many points of common interest. The purpose of the affair was to bring together the authorities and the motorists on a basis of friendly interest, and it was markedly successful in accomplishing it.

Colonel George Pope acted as toastmaster. Among the speakers who made happy reference to the better understanding that is obtaining between the authorities in Connecticut and motordom were Mayor Edward L. Smith of Hartford, Senator Joseph W. Alsop, framer of the liberal state law who pointed out the fundamental advantage of good roads and just taxation of the motor car; City Engineer Fred L. Ford, who described scientific road-making; Ralph D. Britton; General W. T. Fenn who was presented with a watch fob for his services to the club as president; F. E. Duffy, master of the West Hartford grange; Selectmen A. W. Hanmer, Wethersfield; Charles G. Bill, Unionville, who gave a talk on the split-log drag and its uses; A. B. Cook, Farmington, and Arthur

REGAL PROMINENT IN RUN

FRANKLIN PERFORMED WELL

NATIONAL TECHNICALLY CLEAN

FIAT, PEERLESS AND OTHER CARS IN LONG ISLAND TEAM RELIABILITY TEST

Long Island Automobile Club Wins

J. Birdseye, Farmington. L. A. Speare, president of the A. A. A., and Henry Souther, chairman of the technical committee and several others spoke on subjects of interest to the many motorists present at the feed.

Following are the penalizations imposed upon the contesting cars:

No. 5, Cartercar—Carbureter adjustment, 1; water, 3; gasoline, 6; late at noon control, 37; repairing and filling radiator, 31; water, 6; spread in front wheels, 25; spread in rear wheels, 10; eight broken spokes and loose spring clip, 1. Penalizations on road, 84; technical examinations, 115. Total, 199 points.

No. 22, Overland—Motor stop, 1; speed band, 6; magneto, 8; loose spring clip, 1; steering pivot, 10. Penalizations on road, 15; technical examination, 11. Total, 26 points.

No. 1, Chalmers—Spark plug trouble, 2; motor stop, 1; steering pivots, 10; loose terminal, 1; commutator, 20. Penalizations on road, 3; technical examination, 31. Total, 34 points.

No. 4, Regal—Oil and water, 6; oil, 3; motor stop, 1; spring clips, 3. Penalizations on road, 10; technical examination, 3. Total, 13.

No. 6, Cartercar—Gasoline, 6; engine stop, 56; late at control, 56; gasoline, 3; hand brake, 6; spread in front wheels, 5; loose spring clips, 3. Penalizations on road, 130; clutch and brake test, 8. Total, 138.

No. 9, Jackson—Motor stop, 1; loose flange, 3; foot brake, 43; loose flange bolts, 10; loose spring clips, 1; fender nut, 2. Penalizations on road, 4; clutch and brake test, 43; technical examination, 13. Total, 60.

No. 12, Reo—Motor stop, 10; water, 3; water, 3; gasoline petcock, 14; hot engine, 14 gasoline, 4; fan belt, 7; hand brake, 8; spring clip, 1; fan belt, 1. Penalization on road, 52; clutch and brake test, 8; technical examination, 2. Total, 62.

No. 3, Franklin—Motor stop, 3; camden boot loose, 5. Penalization on road, 3; technical examination, 5. Total, 8.

No. 14, Auburn—Hand brake, 6; steering connection, 15. Clutch and brake test, 6; technical examination, 15. Total, 21.

No. 17, Interstate—Accelerator, 16; hand brake, 21; foot brake, 8; insulator, 1; oil connection, 1. Penalization on road, 16; clutch and brake test, 29; technical examination, 2. Total, 47.

No. 23, Rambler—Water, 3; gasoline, 3; late at control, 20; clutch, 4; accelerator, 7; motor stops, 5; magneto, 4; hand brake, 23; foot brake, 36; spring clips, 3. Penalization on road, 46; clutch and brake test, 59; technical examination, 3. Total, 108.

No. 2, Chalmers—Motor stop, 1; carbureter, 6; sparker, 6; water, 3; brake band, 12; motor stop, 1; sparker, 4; loose truss, 8; spark plug, 4; car not presented, 1,000. Penalizations on road, 45; technical examination, 1,000. Total, 1,045.

No. 7, Corbin—Carbureter, 3; carbureter, 28; spring leaves, 10; spring clip, 1. Penalization on road, 31; technical examination, 11. Total, 42.

No. 8, National—Clutch, 1; gasoline, 3. Penalization on road, 4. Total, 4.

No. 11, National—Motor stop, 1; foot brake, 27; spring clip, 1. Penalization on road, 1; clutch and brake test, 27; technical examination, 1. Total, 29.

No. 15, Speedwell—Gasoline, 3. Penalization on road, 3. Total, 3.

No. 16, Columbia—Perfect score.

No. 18, Franklin—Gasoline, 3; late at noon control, 6; motor stop, 1; motor stops, 2; gasoline, 6. Penalization on road, 18. Total, 18.

No. 20, Lexington—Foot brake, 31; water connection, 1; lamp bracket, 1. Clutch and brake test, 31; technical examination, 2. Total, 33.

No. 10, Franklin—Loose oiler nut, causing leaky condition, 1. Technical examination, 1. Total, 1.

STANDING OF CONTESTANTS IN THE ALL-CONNECTICUT RELIABILITY

No.	Car	Driver	1st day	2d day	Clutch and 3d day	Brake	Final Exam.
		DIVISION 2A, $801 TO $1200					
5	Cartercar	J. F. Cogswell	47	0	37	0	115
22	Overland	Gates	0	1	14	0	11
		DIVISION 3A, $1201 TO $1600					
1	Chalmers	D. Rankin	0	2	1	0	31
4	Regal	A. Jones	6	3	1	0	3
6	Cartercar	Williamson	121	0	3	6	18
9	Jackson	Kilby	0	1	3	43	13
12	Reo	Haycock	13	17	22	8	2
		DIVISION 4A, $1601 TO $2000					
3	Franklin	W. R. Coughtry	0	0	3	0	5
14	Auburn	Langdon	0	0	0	6	15
17	Inter-State	Ensign	16	0	0	29	2
23	Rambler	Foster	30	0	16	59	3
		DIVISION 5A, $2001 TO $3000					
2	Chalmers	Knipper	28	5	12	0	1000
7	Corbin	Corbett	3	28	0	0	11
8	National	Reid	1	0	3	0	0
11	National	McCutcheon	1	0	0	27	1
15	Speedwell	Langdon	0	0	3	0	0
16	Columbia	Wagner	0	0	0	0	0
18	Franklin	C. S. Lee	9	1	8	0	0
20	Lexington	———	0	0	0	31	2
		DIVISION 6A, $3001 TO $4000					
10	Franklin	Carris	0	0	0	0	1

GUY LOOMIS IN FIAT CLIMBS RIVER HILL IN LONG ISLAND RUN

THREE OF THE CONTESTING CARS IN INTERCLUB MATCH ON SECOND DAY OF TEST

Team Match From the Crescents

NEW YORK, May 23—The interclub reliability team match between the Long Island Automobile Club and the Crescent Athletic Club, of Brooklyn, a 2-day affair that was held Saturday and Sunday, was won by the Long Islanders, the average penalization of whose cars was only 9 points, while the Crescents averaged 11⅔. Thus the A. R. Pardington trophy goes to the Long Island club.

The contest grew out of a bantering challenge on the part of members of the Crescent club and almost as soon as the challenge had been delivered the Pardington cup had been tendered as a perpetual trophy. Under the conditions as they were finally framed, the contest took this form: An equal number of entries—fifteen—from each club competed, the club that had the fewest penalizations to be declared the winner. Entrants had to be active members of either of the clubs, and no technical examination took place at the finish. Ability on the road was the sole criterion of merit. The affair attracted much interest among the members of both organizations and if the rules had permitted it, many more entries than fifteen on a side could have been secured.

As it was, that number of cars were formally entered and Saturday morning all thirty were sent away from the clubhouse of the L. I. A. C. The course was generally along the south shore to Blue Point, where a noon control had been established and where the tourists and a cavalcade of non-contestants enjoyed luncheon. From Blue Point, the way lay to Quogue and Easthampton, where the course turned backward to Riverhead. Saturday night was spent at that place.

The pace was leisurely and the roads were good and the first leg of the tour was accomplished with surprisingly little trouble of any kind. A stag party, for which the talent had been imported from New York, enlivened Saturday evening at Riverhead and Sunday morning the tourists took up the return course.

The first day's run which covered 132 miles in 9 hours was accomplished by all thirty of the entrants without penalty of any kind for road work. This speaks volumes for the character of the Long Island highways as well as for the cars themselves and the care and skill of the various drivers. But on the run back which was generally along the north shore of the island, the test proved to be more severe and many of the cars experienced all kinds of difficulties.

The run yesterday was along the north shore from Riverhead to Bay Ridge, and with the exception of a few tire blowouts, no serious trouble was experienced. The drivers jogged along at a speed of about 20 miles per hour. A brief stop was made at Rocky Point, about 7 miles from Port Jefferson, where Frank G. Webb owns a bungalow. Mr. Webb welcomed the motorists on the lawn. After partaking of the refreshments that Mr. Webb provided, the party continued to Smithtown, where the noon stop was made.

Those who represented the Long Island Automobile Club on the run were as follows: C. W. Caffrey, Stoddard-Dayton; F. H. Evans, Franklin; Joseph D. Rucker, Haynes; Charles J. Banta, Speedwell; Alfred Wilmarth, Velie; Guy Loomis, Fiat; V. F. Parker, Simplex; Charles Hewlett, Stevens-Duryea; Charles Werner, Locomobile; Albert Bryant, Overland; H. Grattan, Pope-Hartford; J. P. Disbrow, Rainier; A. W. Swanstrom, Chalmers; C. H. Humphreys, Maxwell; M. Speiro, Pope-Hartford; L. R. Adams, Stearns; A. C. Alderman, Knox, and Jeremiah S. Frazee, Rambler.

The contestants from the Crescent Athletic Club were: Foster Crampton, Peerless; George Brower, Franklin; Kingsley Swan, Stearns; Frederick Whitney, Locomobile; J. S. Masterson, Chalmers; A. P. Palmer, Palmer-Singer; A. W. Blanchard, Herreshoff; S. C. Kirkman, Columbia; C. V. Bossert, Mercedes; W. C. Candee, Stoddard-Dayton; T. A. Buys, Oakland; J. I. Grady, Cadillac; G. F. Deely, Berkshire; G. Stevenson, Peerless; P. N. Bainbridge, Locomobile; J. P. Fairchild, Locomobile; Frank B. Stevenson, Peerless; A. R. Pardington, Chalmers, and H. C. Martin, Peerless.

CAFFREY IN STODDARD IN LONG ISLAND RELIABILITY

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Rational Speed Limits

THE motorists of New York have this week secured a signal victory in the matter of regulating the speed of motor cars on country roads throughout the state. Their speed law places the limit at 30 miles per hour with as low as 15 in cities and populous centers. This is the first case on record in America where a state has officially placed the limit at 30 miles per hour, the prevalent figure being 20. While increasing the maximum speed permissible under law is in itself a great rational victory, the passage of the Callan bill recorded another victory, namely, that of taking it out of the hands of villages and other small municipalities to pass speed ordinances to suit their own whims. As it is now a motorist can drive from one corner of the state to another without worry as to what the speed limit is in each village or town as it is reached. This is a just condition. It is an indication of barbarism where municipalities in the same state are permitted to fix their own speed limits so that a tourist in the course of a 200-mile run has to run the risk of breaking fifty or more ordinances in the different villages, towns and townships passed through. Where each village is permitted to set its own speed limit those legislators fail to realize that the motor car is a different mode of transportation from the horse. It is entirely un-American to place thirty or forty different speed limits per day on one of the most approved methods of locomotion, and it is safe to say that were those legislators, who favor separate speed laws for each village or township, given an all-day trip through a populous country they, too, would come to the conclusion that such individual speed laws are relics of barbarism.

THE passage of the Callan bill establishes a commendable precedent in the matter of permissible speed, namely, 30 miles per hour on country roads. The present limit of 20 miles per hour in many states is broken every time a motor car passes through the country, and the question arises what is the moral value of a law which is broken by every car every time it drives through the country? With the present car with its flexible motor, its simplicity of control and its adequate braking system, it is safer driving motor cars at 30 miles per hour than horse vehicles at 10. The passage of the Callan bill is an indication that the people are at last realizing the perfection of motor control, and that a car traveling at 30 miles per hour is entirely within the realm of safety. It has taken years to educate the people to this condition of affairs, but now that New York has established the precedent it is certain that the matter will be taken up with determination in other states.

HAND in hand with the passage of the Callan bill goes the stricter control of riders, stricter regulations regarding carrying of car licenses, stricter regulations concerning drivers' ability, and stricter regulations relative to the laws of the road. The passage of this bill is an acknowledgment of individual judgment and is an indication of progress. Those who have been instrumental in passing it have realized that it is much safer on country roads to travel 30 miles per hour than it is to travel 8 miles per hour at other places. It has been this difference of conditions that the county constable and the overzealous policemen have failed to recognize, but which is receiving recognition in many places. The greatest safety valve in the speed problem is the responsibility of the driver. If he feels that a severe punishment is certain where carelessness occurs, whether traveling at 8 or 30 miles, he will exercise greater care.

Engineers' Society's Work

AS suggested in these columns 6 months ago, the work of the mechanical branch of the Association Licensed Automobile Manufacturers which ceased some years ago is to be revived, the association having transferred its good will, records and data to the Society of Automobile Engineers, which society, comprising in its membership over 95 per cent of the engineers of the country, is expected to take up the work along broader lines and push it to the benefit of the entire motor car industry. It is questionable if there is any other industry in America which shows such a lack of unity as the motor car one. Every great industry has its annual convention, in which engineers and executive heads meet in conferences and discuss those matters which are of vital moment, but in the motor car field there have existed too much rivalry and too many jealousies to permit of coöperation. Now that the Society of Automobile Engineers has been given a free hand it is to be hoped that all companies, big or small, holding membership in this society will meet and lay aside their petty jealousies and meet face to face those problems which are of greatest interest and moment.

IT has been asked what can a society of this nature do by way of actual benefit to the industry. What can be done depends to a very great extent upon the activities of the society and the coöperation of its members, but the possibilities of what such a society can accomplish are unlimited. If this society will do nothing more than bring about some progress in standardizing car parts it will have accomplished a great good. President Howard Coffin cites one example of where standardization can be introduced to the greatest advantage. He reports that there are not fewer than 1,600 different sizes of tubing used in the different makes of motor cars, whereas there is no necessity for more than 160. With a tube mill called upon to manufacture and fill specifications for 1,600 different sizes of tubing is an impossibility to give rational deliveries. Were that same mill required to furnish but 160 different sizes of tubing its problem would be decimated, and this decimation would mean earlier deliveries and cheaper materials. Were standardization carried to that point today which it should have reached there would not be that continuous call for material from the different car makers, and they would be able to secure parts in reasonable time, whereas, under present unstandardized conditions many orders are cancelled solely because of the multiplication of specifications on standard goods. There is every reason to believe that the S. A. E., reënforced, as it will be, with the records of the mechanical branch, can bring about desired standardization, and, if so, it will be possible not only to reduce the price of parts, but also to give earlier deliveries.

IT is to be hoped that the different manufacturers having membership in the S. A. E. will forget their own laboratories or factories for a few short hours, occasionally, and meet in the society's meetings and get together for the general good. Some of the engineering departments in American motor car factories are the essence of selfishness. Their laboratories are sealed vaults to everybody except their engineering force and one or two executive heads. They say, "It costs us dearly to find out what we have discovered and now we are not going to give it to the other fellow for nothing." As a matter of fact in some of these selfsame laboratories the chief work consisted in copying European designs and constructions instead of working out original designs.

REVISION OF TIRE PRICES SET FOR JULY 1

CHICAGO, May 24—No further increase in the price of tires has been announced since the jump made last week by the Goodyear company which increased its list 15 per cent on its clincher types of tires. It is said by local representatives of large tire concerns that there will be nothing doing in the rubber line until July 1 when there will be an adjustment of prices on the part of nearly all of the American tire manufacturers. It is claimed by some of them that the present high price of rubber is caused by the London speculation craze and that as soon as that abates the prices will come down. There was a break in quotations recently of from 15 to 20 cents in 1 day and this is taken as a favorable indication that the craze for speculation in rubber stock will not last much longer.

If American tire manufacturers went into the market at the present time and bought stock it is said that it would be necessary to increase the list on their products at least 50 per cent instead of the modest 10 and 15 per cent which have marked recent advances. It is believed that many of the American concerns of prominence are well provided for in the way of stock, it being claimed that most of them now are manufacturing tires from rubber for which they paid $1.60 per pound and it is said that everyone has enough of this $1.60 stock to fill orders this season. It also is asserted that no one has been obliged to buy rubber at the prevailing price of $3 and up per pound and that the American trade as a whole has religiously abstained from going into the market, the idea being that if all refused to pay the exorbitant rates demanded the producers would have to come down in their prices, literally starved out by the co-operative defense put up by American tire manufacturers.

Break in London Speculation Craze Will Relieve the World's Rubber Situation, It Is Said

The rubber situation at the present time is a most interesting one, and is a matter of vital importance to tire manufacturers. Therefore the report made by the London Times on the rubber production of the world is interesting. The Times says: "The world's present sources of supply for crude rubber are approximately as follows:

	Tons
River Amazon with its tributaries	39,000
Other districts of Brazil	2,800
Federated Malay States, Ceylon, Sumatra, etc., plantation rubber	4,600
Congo Free State and the French Congo	5,600
Portuguese West Africa	2,900
West coast of Africa, excluding the Congo and Portuguese West Africa	9,500
Rangoon, Penang, Borneo, etc., wild rubber	1,200
East coast of Africa, Mozambique, Madagascar, etc.	800
Mexico, East Indies and Central America	1,500
Total	67,900

"The figures given above are necessarily for the most part estimated, as with the exception of the exports from the Amazon, no exact records are obtainable of the production of the various districts, nor is it possible to obtain a complete record at the different ports of arrival, as statistics of some of the ports can only be obtained in an unclassified form, and from other ports no accurate statistics at all are obtainable.

"A principal difficulty in dealing with raw rubber is that the figures of exports, say from the Amazon, never correspond with the imports at New York or Liverpool, so great is the shrinkage which occurs en route, especially in the case of new rubber. The chief value that such statistics have is in their indication of the steady increase in the world's production, while everybody knows that prices mount up much more rapidly."

Reports from Terreon, Mexico, state that a new process has been invented for extracting rubber from the guayule shrub. A large factory is being erected there in which the new equipment is being installed. It will be one of the largest guayule rubber factories in Mexico. It is claimed by E. Delafond, a French engineer who invented the new process, that it will produce a higher grade of rubber than is obtained by the methods now used by the other factories for its extraction. He also says that about 40 per cent more rubber will be obtained from the shrub by the use of the new machines than of the old methods. This fact makes the invention of the highest importance to the guayule rubber industry which has had a marvelous development in northern Mexico during the last few years. There are several large rubber factories in Terreon and the immediate section. The new factory will be finished in a few weeks. Associated with Mr. Delafond in the enterprise are a number of Mexicans who own large tracts of land upon which the guayule shrub grows abundantly. The market price of the shrub is steadily advancing. A number of contracts were recently made for the shrub at $200 Mexican currency per ton, and as high as $210 per ton has been paid.

THE CHICAGO TROPHY
PRESENTED by the CHICAGO MOTOR CLUB
WINNER OF THE ROADSTER DIVISION OF THE
1910 AMERICAN AUTOMOBILE ASSOCIATION TOUR
FROM CINCINNATI TO CHICAGO VIA DALLAS, TEX.
AAA

CHICAGO TROPHY, DONATED BY THE CHICAGO MOTOR CLUB FOR THIS YEAR'S NATIONAL TOUR

Fair Field Already for Glidden

NEW YORK, May 23—Gradually the entries for the Glidden tour are being rounded up and today it looks as if the field will be some larger than that of a year ago, with the Chicago trophy proving as popular as the Glidden. Up to today Chairman Butler had thirty-four cars listed—eleven in the Glidden, twelve in the Chicago, three non-contestants and eight not placed, although entered. Two Stavers, one in each division and another Lexington, have been added since last week, while a Rapid truck has been placed among the non-contestants. Also two Buicks, two Oaklands, two Pullmans and two Ohios have been entered, but it has not been decided in which divisions they will compete. This leaves the entry list to date as follows:

Glidden Trophy Division—1, Premier Motor Mfg. Co.; 2, Premier Motor Mfg. Co.; 3, Chalmers Motor Co.; 4, Chalmers Motor Co.; 5, Chalmers Motor Co.; 6, Cole Motor Car Co.; 7, Maxwell-Briscoe Motor Co.; 8, Cartercar Co.; 9, Parry Auto Co.; 10, Bartholomew Co.; 11, Staver Carriage Co.

Non-contestant Division—Two Cadillac gun carriages entered by the Northwestern Military Academy; truck entered by the Rapid Motor Vehicle Co.

Chicago Trophy Division—100, Moline Auto Co.; 101, Moline Auto Co.; 102, Moline Auto Co.; 103, Lexington Motor Car Co.; 104, Cole Motor Car Co.; 105, Parry Auto Co.; 106, Fal Motor Car Co.; 107, Maxwell-Briscoe Motor Co.; 108, Cartercar Co.; 109, Cartercar Co.; 110, Lexington Motor Car Co.; 111, Staver Carriage Co.

Unclassed—Two Buicks; two Oaklands; two, Pullman Motor Car Co.; two, Ohio Motor Car Co.

Other makers have signified their intentions of filing their formal entries before Wednesday next, the date fixed for closing the entries. The night stops, official hotels and noon stops, together with the mileages between, are as follows:

June 13—Cincinnati, O., Gibson house; Lexington, Ky., 83.3, noon stop.
June 14—Louisville, Ky., the Seelbach, 162.9; Bowling Green, Ky., 130.0, noon stop.
June 15—Nashville, Tenn., the Maxwell, 193.9; Columbia, Tenn., 41.5, noon stop.
June 16—Sheffield, Ala., Sheffield hotel, 119.7; Corinth, Miss., 62.1, noon stop.
June 17—Memphis, Tenn., Gayoso house, 161.7; Clarenden, Ark., 112.2, noon stop.
June 18—Little Rock, Ark., the Capital, 207.7; Prescott, Ark., 84.0, noon stop.
June 19—Hot Springs, Ark., 53.3.
June 20—Texarkana, Ark., the Brockhaus, 138.3; Paris, Tex., 97.2, noon stop.
June 21—Dallas, Tex., the Oriental, 217.1; Terral, Okla., 130.1, noon stop.
June 22—Lawton, Okla., the Oriental, 200.7 Chickasha, 64.6; El Reno, 112.4.
June 23—Oklahoma City, Okla., Lee Houckins, 145.3; Enid, Okla., 101.1, noon stop.
June 24—Wichita, Kans., the Eaton, 216.2; Emporia, Kans., 108.8, noon stop.
June 25-26—Kansas City, Mo., the Baltimore, 234.5; Maryville, Mo., 126.5, noon stop.
June 27—Omaha, Neb., the Rome, 242.3; Guthrie Center, Ia., 105.3, noon stop.
June 28—Des Moines, the Savoy, 159.0; Marengo, Ia., 96.2, noon stop.
June 29—Davenport, Ia., Kimball house, 219.8; Rochelle, Ill., 102.8, noon stop.
June 30—Chicago, 179.7.

Arrangements are about complete for the start of the tour from Cincinnati, at least insofar as the entertaining of the visitors by the Automobile Club of Cincinnati is concerned. Dr. Charles Bonifield, president of the Cincinnati club, has received a report from G. W. Drach, chairman of the financial committee, showing that nearly $3,000 has been subscribed for the entertainment outlined by the club. A tentative program for the entertainment of the visitors has been laid out starting with a smoker and buffet lunch in the rooms of the Automobile Club of Cincinnati, Gibson house, on Saturday, June 11. On Sunday the Cincinnati Automobile Dealers' Association headed by Edward E. Herschede, president, and H. T. Boulden, of the Cincinnati Motor Car Dealers' Co., will entertain the visitors, the nature of which is being kept a secret by the committee in charge. On Monday, June 13, the visitors will be again turned over to the club and will be taken to Coney Island for a barbecue and burgoo.

It is the wish of the committee in charge that all visitors call at the clubrooms immediately on their arrival in Cincinnati for the purpose of registering and receiving badges, which entitles them to partake in the entertainment being provided for them. Hotel accommodations will be arranged by the club committee.

ITINERARY OF THIS YEAR'S GLIDDEN TOUR AS LAID OUT BY DAI LEWIS

CINCINNATI TO LOUISVILLE

Covington, Ky..	.8	Fort Spring	90.6
Erlanger	8.4	Versailles	96.3
Florence	10.	Jett	105.8
Richwood	15.8	Frankfort	110.2
Kensington	17.	Bridgeport	115.6
Walton	19.8	Grafenburg	118.9
Bracht	23.	Peytona	122.6
Crittenden	26.4	Clay Village.....	125.1
Sherman	29.7	Shelbyville	131.1
Dry Ridge	33.4	Simpsonville	138.4
Williamstown ...	37.1	Boston	142.9
Mason	42.1	New Eastwood ..	144.
Blanchet	46.6	Middletown	148.8
Corinth	48.7	8-Mile House....	152.2
Georgetown	71.3	St. Mathews.....	154.8
Lexington	83.3	Louisville	162.

LOUISVILLE TO NASHVILLE

Buechel	7.2	Canmer	83.7
Fern Creek.....	11.4	Hardyville	86.5
Ashville	12.9	Uno	91.4
Thixton	15.4	Bear Wallow....	94.8
Mt. Washington.	19.6	Cave City.....	100.5
Smithville	22.8	Glasgow Junction	106.7
High Grove.....	25.8	Bowling Green..	130.
Cox's Creek.....	32.4	Franklin	150.3
Bardstown	38.5	Mitchell, Tenn...	157.3
Ballton	44.4	Mulloys	163.4
New Haven.....	52.5	Whitehouse	169.6
Athertonville ...	54.5	Millersville	178.2
Buffalo	66.1	Goodlettsville ...	181.4
Magnolia	71.4	Nashville	193.9
Pike View.....	76.2		

NASHVILLE TO SHEFFIELD

Brentwood, Tenn.	8.9	Summertown ...	62.9
Franklin	17.8	Lawrenceburg ..	76.9
Springhill	30.3	Dunn	80.4
Neapolis	34.	Leona	82.6
Columbia	41.5	Pleasant Point..	84.5
Ridley	51.3	Loretto	90.3
Mt. Pleasant....	52.8	Greenhill, Ala...	98.2
Sandyhook	56.8	St. Florian	109.
Williamsville ...	57.6	Florence	115.2
Rockdale Furnace	58.2	Sheffield	119.7
Crestview	61.8		

SHEFFIELD TO MEMPHIS

Tuscumbia, Ala.	2.1	Moscow	123.
Barton	13.9	Rossville	131.4
Cherokee	18.7	Piperton	135.6
Iuka	36.9	Collierville	138.1
Burnsville	46.5	Bailey Station...	141.7
Corinth	62.1	Forrest Hill Sta.	143.7
Essary Springs, Tenn.	82.6	Booths Station ..	146.2
		Germantown	147.
Rogers Springs..	95.4	Whites	152.1
Saulsbury	102.9	Aulon	156.4
Grand Junction..	109.8	Memphis	161.7
La Grange.....	113.3		

MEMPHIS TO LITTLE ROCK

Lynchburg, Miss	15.	Barton	75.1
Walls	18.3	Poplar Grove....	80.5
Glover	20.7	Marvel	84.4
Lake Cormorant	24.4	Blackton	99.6
Clack	31.2	Clarendon	112.2
Robinsonville ...	35.	*Roe	0.
Hollywood	42.1	Stuttgart	21.5
Tunica	46.5	Hazen	41.9
Austin	52.4	Carlisle	51.
Helena, Ark.....	62.6	Lonoke	63.
W. Helena.....	66.7	Argenta	86.2
Belser	70.2	Little Rock	87.3

*On the run from Memphis to Little Rock, it will be noticed that Clarenden is 112.2 miles, and then the mileage at Roe commences at zero. When the pathfinder crossed the White river at this point, it was necessary to ferry down the river for 7 miles, as the regular landing place across the river from Clarenden was under water for 5 miles, so Lewis simply estimated, from information gathered, the distance from the regular landing place to Roe as 8 miles, and then commenced his mileage again at zero at the railroad crossing at Roe.

LITTLE ROCK TO TEXARKANA

Collegeville, Ark	15.2	Okolona	119.4
Benton	23.4	Boughton	132.1
Lonsdale	37.9	Prescott	137.3
Hot Springs.....	53.3	Emmett	145.8
Lawrence	59.7	Hope	154.9
Social Hill.....	78.6	Fulton	169.1
Friendship	88.2	Homan	176.9
Arkadelphia	97.5	Mandeville	187.3
Dobyville	113.4	Texarkana	191.6

TEXARKANA TO DALLAS

Leary, Tex.....	10.4	Windom	125.7
Hooks	15.	Dodds	130.2
New Boston.....	22.3	Bonham	136.5
Boston	23.6	Ely	146.5
De Kalb.....	36.3	Whitewright ...	151.9
Annona	55.5	Pilot Grove.....	158.3
Clarksville	64.9	Sedalia	164.1
Detroit	78.4	Anna	171.8
Blossom	87.3	Melissa	176.1
Paris	97.2	McKinney	183.8
Brookston	107.3	Piano	197.9
Hightown	110.	Richardson	203.9
Petty	113.6	Dallas	217.1
Honey Grove....	120.3		

BENZ BEST IN AUSTRIAN CLIMB

Vienna, May 15—Up the Ries mountain, near Graz, in the world-famous Semmering district, there was held today the annual hill-climb known as the Ries and which is second in importance to the annual Semmering. Heim's Benz made the best climb, covering the course of 3.7 miles, having from 9 to 12 per cent gradient, in 4 minutes 24 seconds. A Mercedes with Metzka at the helm was second in 4:39, a Fiat third in 4:50 and a second Mercedes fourth in 5 minutes flat.

Entries in Trophy Races at

Indianapolis, Ind., May 24—Everything is in readiness for the first meet of the season at the Indianapolis motor speedway, which will begin Friday and conclude with the national championship races Monday. The 2½-mile course is in excellent condition and the advance sale of seats and boxes has been most satisfactory. Many improvements have been made at the grounds since the December meet. The grand stands have been enlarged and a number of new buildings erected. Both the steam and electric railroads have promised to give good transportation service. The list of entries for the trophy races is as follows:

FRIDAY, MAY 27

Event No. 9—Class D cars, free-for-all, open, 5 miles, prize, Indianapolis motor speedway helmet: Empire, N. Motsinger; American Herbert Lytle; National 40, Aitken; National 40, Kincaid; National, Art Greiner; Fuller.

Legal Wrangle On in Hoosierdom

AND WHICH TAKES IN 2842 MILES IN THIRTEEN DIFFERENT STATES

DALLAS TO LAWTON

Grand Prairie, Tex.	13.	Fruitland	97.7
Arlington	19.6	Bowie	103.1
Handley	26.	Stoneburg	113.7
Fort Worth	32.6	Ringgold	124.9
N. Fort Worth	35.	Terral, Okla.	130.1
Saginaw	40.4	Ryan	138.4
Hicks	46.6	Waurika	150.5
Rhome	57.1	Hastings	159.5
Decatur	72.1	Temple	169.5
Alvord	85.5	Walter	179.2
Sunset	93.8	Geronimo	192.
		Lawton	200.7

LAWTON TO OKLAHOMA CITY

Rohrer, Okla.	13.8	Pocassett	75.7
Apache	26.4	Minco	83.7
Anadarko	44.8	El Reno	112.4
Verden	54.4	Yukon	125.1
Chickasha	64.6	Pilot Grove	158.3

OKLAHOMA CITY TO WICHITA

Bretton, Okla.	7.7	Renfrow	147.9
Edmond	15.5	Caldwell, Kans.	157.7
Guthrie	33.8	Drury	164.7
Mulhall	47.8	South Haven	169.7
Orlando	55.	Wellington	184.6
Enid	100.1	Riverdale	192.2
Kremlin	113.6	Peck	200.2
Pond Creek	123.4	Wichita	216.
Medford	136.1		

WICHITA TO KANSAS CITY

Newton, Kans.	25.5	Williamsburg	152.9
Elbing	37.6	Ransomville	157.2
Peabody	46.1	Ottawa	170.5
Florence	60.4	Wellsville	187.1
Clements	73.4	Edgerton	194.3
Elmdale	80.9	Gardner	201.5
Cottonwood Falls	87.	Bonita	207.2
Elinor	97.3	Olathe	212.2
Plymouth	100.6	Pleasant View	215.1
Emporia	108.8	Lenexa	219.3
Lebo	125.9	Shawnee	224.6
Waverly	140.3	Merriam	225.6
Agricola	145.7	Rosedale	230.2
Silkville Station	150.	Kansas City	234.5

KANSAS CITY TO OMAHA

Kansas City, Kan.	2.9	St. Joseph	82.1
White Church	11.2	Savannah	95.1
Piper	16.7	Maryville	126.5
Wallula	21.6	Wilcox	134.6
Lansing	25.7	Burlington Jct.	142.5
Leavenworth	30.2	Tarkio	159.5
Lowemont	40.2	Shenandoah, Ia.	182.8
Atchison	56.2	Randolph	199.8
Winthrop, Mo.	56.7	Tabor	206.6
Rushville	62.4	Glenwood	219.8
Halls	68.3	Council Bluffs	237.3
So. St. Joseph	77.9	Omaha, Neb.	242.3

OMAHA TO DES MOINES

Council Bluffs, Ia	5.6	Brayton	76.1
Weston	13.5	Exira	80.7
Underwood	19.6	North Branch	92.2
Neola	25.7	Guthrie Center	105.3
Minden	30.3	Monteith	111.6
Avoca	41.1	Dale	118.1
Walnut	47.7	Redfield	127.
Marne	55.3	Adel	137.1
Atlantic	62.7	Waukee	144.
Lorah	69.7	Des Moines	159.

DES MOINES TO DAVENPORT

Altoona, Ia.	11.2	Atkins	123.4
Mitchellville	18.1	Cedar Rapids	134.2
Colfax	24.	Western	143.6
Newton	35.6	Shueyville	144.6
Kellogg	43.9	Curtis	148.
Grinnell	56.2	North Liberty	152.9
Brooklyn	71.8	Iowa City	161.
Carnforth	77.6	West Liberty	177.6
Ladora	88.2	Atalissa	183.7
Marengo	96.2	Moscow	188.8
Blairstown	104.5	Wilton	192.8
Van Horn	111.2	Durant	199.8
Newhall	117.9	Davenport	219.8

DAVENPORT TO CHICAGO

Rock Island, Ill.	2.4	Flagg Center	99.
Moline	3.9	Rochelle	102.8
Watertown	10.2	Creston	109.
Hampton	12.1	Malta	114.4
Rapid City	16.2	De Kalb	120.
Port Byron	17.9	Maple Park	128.
Cordova	25.3	Elburn	134.6
Albany	33.4	Geneva	143.6
Cedar	38.6	West Chicago	148.9
Morrison	47.3	Lombard	158.4
Emerson	58.	Elmhurst	159.4
Sterling	61.9	Bellwood	166.4
Palmyra	69.5	Maywood	167.3
Dixon	75.3	River Forest	169.7
Nachusa	80.1	Oak Park	170.5
Franklin Grove	85.1	Austin	171.5
Ashton	89.5	Chicago	179.7

the Indianapolis Speedway

Schwitzer; Cole, L. Edmunds; Cole, Endicott; Westcott, Endicott; Marion, G. Anderson; Marion, Charles Stutz; National, H. Harvey; Jacksons, F. Ellis, L. Lynch and L. Schwitzer; Warren-Detroit, Art Miller; Cutting, ———; Herreshoff, Roberts; E-M-F, Tom Skaggs; E-M-F, H. L. Cunningham.

Event No. 10—Stock chassis, class B, division 4, 100 miles for Prest-O-Lite trophy: Pope-Hartford, F. P. Fox; National, Art Greiner; Westcott, Endicott; Jacksons, F. Ellis, Lee Lynch and L. Schwitzer; Marmons, Ray Harroun and Joe Dawson; Cutting, ———; Buicks, R. Burman and L. Chevrolet.

SATURDAY, MAY 28

Event No. 18—Class E, 600 cubic inches piston displacement or less, 200 miles, Wheeler & Schebler trophy: Fiat, Ed Hearne; Pope-Hartford, F. P. Fox; National 60, Aitken; Westcott, Endicott; National, H. Harvey; Marmon, Bruce Keene; Marmon, Joe Dawson; Marmon, Ray Harroun; Cutting, ———; Buick, R. Burman; Buick, A. Chevrolet; Buick, L. Chevrolet; Knox, Barney Oldfield.

MONDAY, MAY 30

Event No. 14—Stock cars, class E, for John A. Wilson trophy, to be awarded to touring car carrying four passengers, rated at 50 horsepower or under, making full mile in 1 minute or less—National 40, ———; National 40, Watson Faulkner.

INDIANAPOLIS, IND., May 24—A suit asking that a receiver be appointed for the American Motor Car Sales Co. and for an injunction to prevent John N. Willys from selling stock of the Willys-Overland Automobile Co., and for an accounting of the books of the latter concern, was brought in the superior court yesterday by Thomas P. C. Forbes, Jr., of New York city, a stockholder and former general sales agent of the sales company.

The complaint recites that the sales company was organized in 1907 with Mr. Willys as president, Mr. Forbes holding 200 shares of common stock and 100 shares of preferred stock. An arrangement was made to sell the product of the Overland Automobile Co. and of the Marion Motor Car Co., the profits last year being $400,000. Continuing, the complaint states that $385,000 of the profits was used in purchasing the Toledo Motor Co.

The stock in the Toledo company, so Forbes alleges, was placed in Mr. Willys' name and held in trust, and last year the capitalization was increased from $10,000 to $2,000,000, the name being changed from the Toledo Motor Co. to the Willys-Overland Co. It is held that Mr. Willys has not issued stock in the Toledo company in proportion to holdings of stockholders in the American Motor Car Sales Co. and that no accounting has been made. Forbes also charges that no payment in any form has been made and that there has been no dividends or distribution of profits.

Mr. Forbes charges Mr. Willys with having dummy directors and that Mr. Willys caused the bookkeeper to credit him—Willys—with back salary at the rate of $1,000 a month from September 1, 1908, and with $150,000 a year from September 1, 1909, covering a period of time for which he received a salary of $1,200 a year. In conclusion, Mr. Forbes asks $4,000 which he says is due him as general sales agent, $1,500 dividends on his stock and for possession of stock which he says is due him from the company.

A similar suit has been filed in the federal court here by Henry F. Campbell, of this city, who also is a stockholder in the American Motor Car Sales Co. Mr. Willys has made a denial of the charges, as follows:

"A little over 2 months ago I was offered the stock held by Messrs. Campbell and Forbes for $2,000,000, which I refused, as I considered their prices far more than the stock was worth, and to show them that I was sincere I offered to sell them my stock at that time at the same rate, which they refused to accept. I have managed the different concerns successfully, and, in my opinion, to the best interest of all the stockholders. While Messrs. Campbell and Forbes have not received cash dividends, they have received stock dividends, being a very large percentage on the amount of their investment, which they have had offers to turn into cash at par. The charges appearing in the complaints are purely fiction and have no foundation upon which to rest. I have nothing to conceal from any stockholder, and when the matter is fought out, as it will no doubt have to be, the fullest investigation will be offered every stockholder as to all of my actions in the management of the several companies with which I am connected."

MISS SCOTT AT BUFFALO

Buffalo, N. Y., May 23—Miss Blanche Stuart Scott, who is touring from New York to San Francisco, arrived here in her Overland car from Rochester yesterday morning. Considering the conditions the run to here was made in good time and without accident. Miss Scott is accompanied by Miss Phillips, who will make the trip to the coast with her. Miss Scott had been delayed somewhat in leaving Rochester and that, together with the muddy roads resulting from several heavy storms through which she passed, caused the tardy arrival in Buffalo. This afternoon she drove her car to East Aurora to visit Elbert Hubbard's Roycroft and she also made a run to Niagara Falls. Her object is more to see the country on the trip than to establish a record. She leaves Buffalo Tuesday morning for Erie, Pa. So far on her trip she has met with great hospitality at the hands of the motorists, and interest is being shown in her trip.

COLE WINS CHICAGO MOTOR CLUB'S FUEL TEST

COLE CAR, WINNER OF CHICAGO FUEL TEST

CHICAGO, May 20—Probably no other fuel test ever held in this country was run so true to actual touring conditions or showed as much as did the one promoted by the Chicago Motor Club yesterday, which was won by a Cole 30, driven by A. W. Johnson, which averaged 23.6 miles per gallon and gained a percentage of 2.8 over a route 191 miles in length, which had Lake Geneva for its turning point.

Because of the long distance of the run and the varying conditions of the highways and the necessity of maintaining the fast schedule provided for by the A. A. A. rules, there was nothing artificial about the test. Carbureters had to be tuned up to meet all conditions; therefore it was impossible to starve the engine in order to save gasoline. The DeTamble, a two-cylinder proposition, was the only one which had to do 16 miles an hour, the others being called upon to show 18 and 20. Yet, notwithstanding this, all the cars with but two exceptions, met the time requirements, which makes the fuel economy showing all the more remarkable. Up around Lake Geneva it was distinctly hilly, and while some of the drivers had to shift gears on grades that ordinarily they would take on high, yet they all kept up to the schedule with great ease. The Overland and Grout were the only ones that did not get in on time.

Originally there were thirteen entries for the trial, but owing to a bad spell of weather two postponements were necessary, and instead of running the affair on April 28, it was May 19 before the event came off. Because of this delay, the Franklin, Moon, Oakland and Welch were scratched, leaving the DeTamble in class 1A, the Hupmobile and Overland in 2A, the Cole and Hudson in 3A, the Falcar and Henry in 4A, the Grout in 5A, and the Knox in 6A, to make the circuit. The Henry got no further than Maywood on the first leg, where it retired because of magneto trouble. The other side of Elgin the Knox had tire trouble and running out of its supply of inner tubes, it was necessary to lay up along side the road until a fresh supply could be obtained from Lake Geneva. This made the Knox 7 hours 32 minutes late at the finish, but as time out was allowed for tire trouble the judges gave it a rating, placing it second. Besides wrestling with tires, Driver Bender also was handicapped by losing the course at Lake Como, and going 8 miles out of his road. This, however, was not recognized by the judges, and his fuel consumption was reckoned as if he only had made 191 miles.

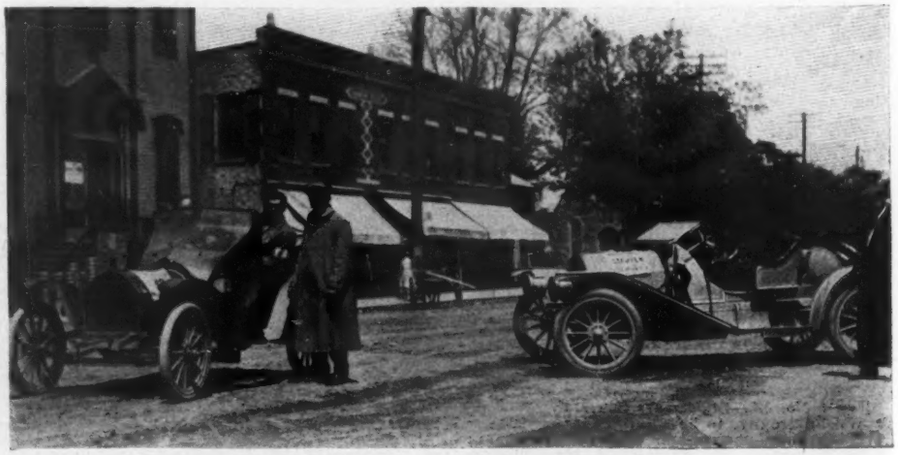
H. E. Halbert, driving the Grout, also experienced roadside difficulties, but coped with them in a game manner, which won him considerable recognition. On the return journey from Lake Geneva Halbert found he was unable to shift gears and an examination disclosed that a cotter pin had dropped into his gears and chipped off some of the teeth. To remove this cotter pin he had to take down the entire transmission. Despite this handicap he got going again and finished, but was 1 hour behind his schedule time, so the judges were compelled to disqualify him. The Hudson and the Falcar, both broke leaves in their front springs, but luckily for the drivers, they were able to make temporary repairs, and get in on time. The Overland was not so fortunate, its broken spring making Driver Schillo 20 minutes late, which brought about the disqualification of the car. If the Grout had not been behind time, it would have been ranked fourth in the final roundup with a percentage of 2.31, and a showing of 14.5 miles to the gallon. The Overland would have been fifth with 1.915 and 17.09 miles to the gallon.

The DeTamble also was handicapped by an obstruction in the gasoline feed pipe, and Driver Turgeon had to make at least a dozen stops, remove the pipe each time and blow through the tube. Then he would couple it up again, and resume his journey. In this manner he swung around the 191-mile circuit and got in on time.

A most creditable performance was put up by E. A. Hearne, driving the Hupmobile, which carried off the honors in straight fuel consumption, Hearne getting 25.8 miles to a gallon, which was considered remarkably good by those who know the severity of the route and the hills encountered in Wisconsin. Hearne also was bothered some by a feed-pipe obstruction, and had to open up his carbureter more than would have been necessary had the line been clear.

In addition to the main prize, a silver trophy, certificates of performance were awarded to the winners of the various classes. Those to get these diplomas were the DeTamble in class 1A, the Hupmobile in 2A, the Cole in 3A, the Falcar in 4A, and the Knox in 6A.

The run was well handled by the officials of the Chicago Motor Club, which already has promoted four economy runs. The start and finish was from the new Fiat



HUPMOBILE, WHICH MADE BEST STRAIGHT CONSUMPTION SHOWING IN CHICAGO TEST

branch at Michigan avenue and Twenty-fourth street. The confetti car was a Diamond T driven by C. A. Tilt and with John De Long strewing the confetti. The pacemaker was a Maxwell, while the press car was a Moon driven by A. M. Robbins.

MOTOR DAY AT BLOOMINGTON

Bloomington, Ill., May 23—The first annual meet of the Bloomington Automobile Club Thursday was a great success. This morning was given over to novelty events, while the afternoon was devoted to speed trials. The best time made in the 1-mile speed trials was by J. L. Murray in a National roadster, in which he covered the distance in :56. The course was a straightaway dirt road, a few miles south of Bloomington. The winners of the various events were as follows:

Egg race—T. A. Harper, Ford, won; D. A. Stevick, Ford, second. Time, :25.

Barrel race—Dwight Funk, Thomas Flyer, won; T. A. Harper, Ford, second. Time, :11.

Teeter board contest—J. L. Murray, Buick, won; T. A. Harper, Ford, second. Time, :17.

Hill-climb, class A—T. A. Harper, Ford, won; Dr. Harwood, Stanley steamer, second. Time, :09⅖.

Hill-climb, class B—Bert Vandervort, Buick, won; Rogers Humphries, second. Time, :10.

Hill-climb, class C—J. L. Murray, National, won; W. D. Snow, Matheson, second. Time, :09⅖.

Slow race, up hill—Dr. Harwood, Stanley steamer, won; T. A. Harper, Ford, second. Time, 1:22.

Up hill, backwards—J. L. Murray, Buick, won; Dwight Funk, Thomas Flyer, second. Time, :20⅘.

Women's race—Mrs. Fish, Ford, won; Mrs. Dunn, Buick, second. Time, :11⅘.

NOVEL CANADIAN TEST

Winnipeg, Man., May 20—A program of racing and reliability contests which will be entirely unique in many ways and decidedly interesting to all owners of cars will be one of the features of the Winnipeg industrial fair, which opens this year on July 13. The program will be run off under the joint auspices of the Winnipeg Automobile Club and the Winnipeg Motor Trades Association. There will be five distinct classes to demonstrate the safety, economy, reliability, accessibility and general utility of the cars carried in stock here and purchasable in the open market. These classes will be made by piston displacement.

The trials will be divided into four general features as follows: Tests of safety, tests of economy, tests of reliability and tests of accessibility. These features will be determined and judged on the following basis:

Safety—Cars shall be driven around the course so as to cross the tape at a speed of 20 miles per hour. The foot brake shall be set on crossing the tape and the distance measured from the most forward part of the car to the tape at the point where the car was brought to a full stop. Next the car must be stopped by the use of the emergency brake. Then both brakes combined will be used. The cars will then be driven over the tape at 20 miles per hour with both brakes set, reversed and driven back to tape. The elapsed time between the first and second crossing of the tape is to be noted. The car must be turned around, always moving in a forward direction through an arc of 180 degrees, the distance between outside wheel tracks at the greatest diameter of the circle to be measured.

Economy—Each car to be provided with a small can mounted at some convenient and accessible place, provided with proper connections to carbureter, and filled with 1 gallon of gasoline; cars to be run at a rate of not less than 15 miles per hour until the gasoline is exhausted. Besides the observer the car may carry as many passengers as the driver or owner sees fit, but the result will be measured in the total of ton miles, according to weights taken at the municipal scales and bearing the serial number of the car.

Reliability—Cars to be run for ½ mile on high speed, the car making slowest time without stalling the motor to be considered the winner. Cars must cross tape on high speed; cars then race ½ mile around the track on the first gear below direct; then comes a pulling test on a dynamometer. Following this cars will be raced around on 100 yards of freshly plowed ground of a loose character from a standing sart.

Accessibility—Cars will be lined up at such places as the judges may designate in full stock equipment, and at a signal the drivers will take tools necessary from the tool box, expose gasoline tank, and remove plug for inspection, elapsed time to count. Then this routine must be followed: Remove cover plate of time or distributer for inspection; uncover and examine battery connections of the car; expose differential gear for inspection; remove transmission gear case cover and expose gearset; remove crankcase and hole covers, and expose all connecting rod bearings and crankshaft ends. No tools will be allowed except those regularly supplied with the car.

Scoring—Cars are to be rated as first, second and third in each class in each event or section of an event. A first shall count 3 points, second 2 points and third 1 point. The car having the highest aggregate in each event shall be declared the winner and the highest grand aggregate shall be considered the grand champion car of the contests.

CHICAGO ECONOMY RUN NOT ENTIRELY FREE FROM TIRE TROUBLE

HILL-CLIMB AT PERU

Peru, Ill., May 20—It is estimated that there were 5,000 persons in attendance at the first hill-climb promoted by the local dealers yesterday, when seven contests for various classed cars were held on the steep little hill on the edge of the town. Fidler, in a Buick, made the fastest time up the hill in the free-for-all event. Summaries:

Class A, cars listed at $1,000 or under—Haworth, Hudson, won; Noonan, Hudson, second; Farnham, Oakland, third. Time, :19.

Class B, cars listed at $1,001 to $1,500—Cole, Hudson, won; Farnham, Oakland, second; Noonan, Hudson, third. Time, :18½.

Class C, cars listed at $1,501 to $2,500—Munn, Buick, won; Farnham, Oakland, second; Noonan, Hudson, third. Time, :16⅘.

Class D, cars listed at $2,501 to $3,500—Munn, Buick, won; Parrish, Palmer-Singer, second; Farnham, Oakland, third. Time, :16⅘.

Free-for-all—Fidler, Buick, won; Parrish, Palmer-Singer, second; Farnham, Oakland, third. Time, :16⅖.

Edgar county championship—Parrish, Palmer-Singer, won; Farnham, Oakland, second; Noonan, Hudson, third. Time, :16⅘.

Standing start—Farnham, Oakland, won; Parrish, Palmer-Singer, second; Munn, Buick, third. Time, :26⅗.

TWO PROTESTS SUSTAINED

Richmond, Va., May 24—Otis M. Alfriend, referee in the Virginia endurance run, given by the Times-Dispatch in the interest of good roads in Virginia, and under the auspices of the A. A. A., has decided upon the protests filed at the previous announcement of the winners. The protest against the Hudson by the Ford Auto Co. was sustained and the Hudson penalized 2 points for a loose fender, while that of the Oldsmobile, by Dr. B. L. Hillsman, against the Rambler was also sustained. The Rambler is penalized 7 points for work on its gasoline line. The official results therefore are:

Division 1—No competition.
Division 2—Hudson, Gordon Motor Co.
Division 3—Chalmers, Gordon Motor Co.; Reo, F. E. Nichols.
Division 4—Buick 17, J. R. Williams, Arvonia, Va.
Division 5—Oldsmobile, D. B. L. Hillsman
Division 6—No competition.
Division 7—Stevens-Duryea, J. B. Swartwout.

The sweepstake cup was awarded this afternoon at a drawing by the four winners having perfect scores. They are: Chalmers 30, Reo, division 3; Buick, division 4, and Oldsmobile, division 5. The Reo's owner, F. E. Nichols, won the cup in the drawing.

RESULTS IN CHICAGO MOTOR CLUB'S FUEL ECONOMY TEST

Car	H.P.	Class	Driver	Gasoline, ounces	Miles per gal.	Weight	Per-centage	Ton Mileage
Cole	30	3A	W. A. Johnson	1,036	23.6	2,950	2.8	34.81
Knox	40	6A	J. A. Bender	1,761	15.6	4.255	2.72	33.189
Hudson	22	3A	James Levy	1,146	21.34	2,780	2.42	29.66
Falcar	28	4A	C. F. Van Sicklen	1,780	13.7	3,390	1.904	23.22
Hupmobile	17	2A	E. A. Hearne	947	25.8	1,640	1.73	21.15
De Tamble	14	1A	G. W. Turgeon	1,351	18.1	1,970	1.45	17.87
*Grout	36.6	5A	H. E. Halbert	1,683	14.5	3,900	2.31	28.27
*Overland	22	2A	A. G. Schillo	1,295	17.09	1,295	1.915	11.06
Henry	27.2	4A	E. C. Haynes	Did not finish				

*Disqualified for finishing outside time limit Gasoline, 128 ounces to the gallon

Details of the Latest Detroit Deal

DETROIT, MICH., May 23—Details of the United States Motor Co.'s plans for the development of its Detroit properties were made known today by Frank Briscoe, president of the Brush Runabout Co. and the Briscoe Mfg. Co., who also is a director of the big eastern corporation.

With the present factory of the Brush Runabout Co., in the northeast section of the city, as a nucleus, the United States Motor Co. will build up within the next few months what it declares will be the largest group of factory buildings for the manufacture of motor cars in the world. As a matter of fact, work on the new building actually has started. A small army of men is breaking ground for the Alden Sampson plant, just north of the Brush, where light delivery cars will be manufactured on a large scale. This plant alone will comprise six large buildings, plans for which are being rushed.

Within a month ground will be broken for a new plant for the Briscoe Mfg. Co., control of which has virtually passed to the United States Motor Co., though no formal announcement has been made as yet. This concern already employs 1,500 and occupies a very extensive plant at Woodward and Baltimore avenues, where it manufactures parts and accessories in whole or in part for practically all the companies controlled by the United States Motor Co. and about 100 outside concerns. Even with an addition now being built this building will not provide the facilities to meet all the demands that will be made upon the company, so, on the completion of the new structure, to be erected immediately south of the Brush plant, the old one will be devoted exclusively to the manufacture of radiators.

In addition to the new Alden Sampson and Briscoe plants, a monster extension to the Brush factory will be made, work to start July 1. This will take up the remainder of the 50 acres owned by the Brush, necessitating the purchase of more ground either in the same vicinity or in some other section of the city for the execution of other development plans. Mr. Briscoe admits that the company is casting about for additional acreage and rumor has it that the corporation has under option a vast tract north of the General Motors site, but Mr. Briscoe is not prepared to disclose the probable location as yet.

"There will be another group of buildings in some other part of the city," he said. "We don't believe in carrying all our eggs in one basket, you know. In the other group, in all probability, will be the new plant of the Gray Motor Co., now controlled by the United States Motor Co., the plans for which are being prepared."

It is likely, too, that this second group will include a foundry large enough to supply all the United States Motor Co.'s Detroit plants at least. Certain stockholders in some of these enterprises are interested in a foundry which has been in operation on Military avenue for some time, and the business has increased to such an extent that a larger plant has become a necessity.

The United States Motor Co.'s plans do not end with the erection of its industrial buildings. By next fall, when the plants now under construction will have been completed, 6,000 men will be employed in this one group alone, and this vast army must have a place to lay its head. The company has purchased 27 acres of land in the immediate vicinity and will utilize it for the erection of homes for its employes. Ten houses were started last week and now are well along. More will follow forthwith. By midsummer a miniature city will have sprung up where, save for the solitary building of the Brush company, only pasture lands existed up to a few days ago.

The Alden Sampson factory, for which ground is being broken, will include a main building, an administration building, a dry kiln, a testing shop, a garage and repair shop and a warehouse. The main building will be 175 feet wide by 1,000 feet long, one story high and of solid concrete all the way through, including even the roof. The Kahn system will be used. The other buildings will be smaller but of the same material.

The Brush plant, when extended, will be in the shape of an enormous letter U. The present building forms one of the sides; the new addition will complete the letter. Each of the wings will be 1,005 feet long, while the connecting part, which will form the front of the plant, will be 450 feet in length. The original plant is the longest building in the city used for the manufacture of motor cars. Ground was broken for it only last November and in January it was turning out machines. It has produced thus far 3,500 Brush runabouts. The extended plant will increase the output to 20,000 per year.

Negotiations for the purchase of the property at Woodward and Charlotte avenues, 90 by 198 feet, to which reference was made in last week's issue, have been closed by representatives of the United States Motor Co. and on this site will be located, in addition to a large garage and salesrooms for the Maxwell-Briscoe and Columbia agencies and the Gray Motor Co., the general offices of the Detroit division of the United States Motor Co. This division, so-called, has just been created by the directors and it is an organization plan in which they have great faith.

All the Detroit plants will be under the general administration of an executive committee composed of Frank Briscoe, of the Brush company, and the Briscoe Mfg. Co.; Morris Grabowsky, manager of the Alden Sampson plant; O. J. Mulford, manager of the Gray Motor Works; E. J. Corbett, a well-known coal man, who has been interested in the Briscoe industries for some time, and one other to be selected later. All these officials will have offices in a three-story building to be erected on the Woodward avenue site, in front of the garage. This will be known as the United States Motor Co. building. It will be built with the future in mind, Mr. Briscoe says, and this fact has given rise to a report that the corporation is planning to remove its general offices here ultimately. Mr. Briscoe declares, however, that there is no such probability for the present at least.

The creation of the Detroit division is in accordance with the United States Motor Co.'s policy to allow each plant to retain its individuality as far as possible While the control will rest in the corporation, each manager will continue to operate his own plant in his own way.

It is learned that the executives of the company are at work on a profit-sharing plan for the benefit of the heads of departments. This will be adopted as soon as the details can be perfected, Mr. Briscoe announces.

HOOSIERS DISCUSS ROADS

South Bend, Ind., May 23—At a meeting of representatives of fourteen counties of northern Indiana held in South Bend last Thursday, under the auspices of the chamber of commerce, the Northern Indiana Good Roads Association was organized. J. M. Studebaker, president of the Studebaker Brothers Mfg. Co., who was one of the speakers at the first session, called attention in emphatic manner to the valuable results of improved highways to both farmer and merchant, and urged coöperation as the only avenue through which the desired results will be obtained. He advised meetings to discuss the subject with the farmers and merchants as attendants. If the farmer could be interested the movement would succeed, he said. Good highways would permit hauling twice the present loads and while they might lead to speeding, he favored a law that would prohibit the operation of motor cars at a rate faster than 25 miles per hour. He also believed that good roads meant an increase of from 25 to 50 per cent in the valuation of property.

L. D. Hall, chairman of the good roads committee of Elkhart, said there is no reason why the roads of northern Indiana should be in the condition they are. He recalled that only a few years ago the roads of Indiana were considered among the best, but that now they are nearly the worst in the country. The movement toward good roads is an earnest one, he thought, and Indiana is bound to come back to its own. He presented the location of South Bend and this community, between Chicago and the commercial east, as the future avenue of travel by road,

and urged the cognizance of the opportunity to make the community famous.

At the afternoon session Aaron Jones, of South Bend, master of the Indiana State Grange and past master of the National Grange, gave one of the most interesting addresses of the meeting.

"Each year," said Mr. Jones, "it costs the farmers of the United States over $450,000,000 to transport their products, when one-half this sum would be ample if the roads were in proper condition. The sum of $90,000,000 is spent annually for improvement and maintenance of public roads when statisticians say half of this sum would bring results if spent advantageously. One of the great needs of good roads is seen in the report of the post-office department, which stated the 41,000 rural mail carriers of the country travel 1,000,000 miles each day. The government has spent $500,000,000 on the improvement of rivers and harbors and when the Panama canal is completed will have spent an additional amount. All this has been done under the presumption it has lowered the cost of transportation.

"Sixty per cent of the commerce that travels on the railroads and lakes is the product of the farmer. If the United States keeps to the front, it will have to look to the sources of its wealth, where the arteries of trade and commerce are supplied. The farmer must be looked to for coöperation in road improvement, for he is the man first and most benefited. The high cost of living is due, not entirely to the farmer, but to legislation which has tended to advance the interest of the manufacturer. One of the best bills that ever has been presented for passage in congress is one now in the conference committee, providing for an appropriation of $500,000,000 annually for the education of the people at large to the value of good roads and to create sentiment in favor of their up-building."

Clarence A. Kenyon, good roads expert of Indianapolis, said among other things: "I believe what we need now is not an organization to listen to papers on how to construct good roads, but one to remedy the defects of the law. The desire for good roads and the energy to construct them is here. What, then, prevents? I believe that you all will agree with me that it is our antiquated system of procedure of doing the work of construction and repair, coupled with the inequitable method of distributing. Let these errors be corrected and Indiana will come to the front with modern roads. My opinion is that our laws are antiquated; the farmer no longer is the sole or main beneficiary of good roads. Why, then, should he and his neighbors in a local community bear the entire burden of building and maintenance? It is absurd, and yet that is the way it must now be done. The law permitting a man to work out his road tax is a relic of the feudal system and also should be abolished."

Michigan Takes Its Motor Census

LANSING, Mich., May 28—That the manufacture of motor cars in Michigan has grown by leaps and bounds until now the Wolverine state leads all its competitors in that industry is shown by the annual report of the state department of labor, just issued.

At so recent a date as 1900, it is stated, the industry was of such insignificance in this country that it was not even given a distinctive place in the national census. From that period, however, the industry began to grow by leaps and bounds and in 1905 the value of the output of the factories of the United States for the year was $26,645,000.

"This splendid advancement naturally was the occasion of excusable pride," says Labor Commissioner Fletcher, "but how much more remarkable and praiseworthy the growth in our own individual state, which has achieved an annual output fully five times as great as that of the entire country 5 years ago."

At the time of the last canvass in 1905 the value of the output in the state was approximately $18,000,000. The investigation just completed shows the output in the last year to have been $135,000,000. Further comparisons show the capital invested in the business to have been $2,300,000 in 1905, while at the present time the capital reaches the sum of $34,000,000. The annual output of cars has increased from 28,830 to 271,440. In 1905 a total of 3,950 persons was employed, while now the payroll extends to some 27,996 persons. The aggregate daily amount paid out in wages in 1905 was $9,349, or an average of $2.38 per diem. Today the aggregate sum paid out for labor will reach $75,470.71, a per diem of $2.70. It is estimated that the total annual payroll at the present time is about $23,400,000.

In addition to the motor car factories proper there are numerous plants producing accessories. It is estimated that these employ a total of 10,000 persons, to whom the sum of $8,000,000 is paid out annually in wages. This makes a grand total of $32,000,000 going into the pockets of Michigan mechanics and workmen from the motor car and kindred industries.

Michigan first took its place among the motor car manufacturing states in 1905 and Detroit has so far outstripped its competitors as to be acknowledged the motor center of the world. "The general prosperity of the state has been greatly enhanced by the magical expansion of the industry," says Commissioner Fletcher, "and the material wealth of the state, as a result, has been greatly increased."

Of the thirty-three plants visited, only ten were employing traveling salesmen, the product in the greater number of cases being marketed through agencies established in the cities and towns of this and other states. Eighteen of the operating companies had increased their capital stock since the 1905 canvass and the aggregate increase amounted to nearly $28,510,000.

While the number of factories in actual operation at this time, numerically speaking, shows no increase over the canvass of 1905, the buildings and equipment have been so greatly enlarged as to utterly destroy the identity of some of even the most pretentious of the original plants. The reason for the lack of increase in number is quite apparent when the active program of merging, consolidating and acquiring of properties that has prevailed is taken into consideration by the Michigan state statistician.

Other figures show that there are eight types of cars manufactured in Michigan, viz: touring cars, runabouts, buses, delivery wagons, wagonettes, trucks, commercial vehicles and tonneau cars. Only 2 per cent of the output is shipped to foreign countries, these cars going to Great Britain, France, Canada, Spain, Mexico, Cuba and Argentine Republic. The number of superintendents employed is seventy-two. The number of office employes is 1,419. Other figures in relation to employes are: Foremen, 591; skilled workmen, 20,572; unskilled workmen, 5,404; total employes, 27,996; traveling salesmen, thirty-eight.

ADOPTS SQUARE DEAL PLAN

Boston, Mass., May 21—The North Weymouth Improvement Association has taken up the square deal propaganda for motorists which was so well worked out by Middleboro last year, making a beginning last Sunday by passing out cards as motorists went through there to and from Boston. It is planned to use cards for a time, but whether or not the banner plan will be adopted later depends upon circumstances. There are several sharp corners where the view is obstructed, and so it is dangerous to go at any speed through there. So the improvement association talked the matter over and it was decided to try the card plan. On each card it says:

The residents of North Weymouth expect all drivers to conform to the law on our streets. Many have not in the past. This year they must. The Automobile Legal Association will be requested to warn its members. The Boston press will be used to warn others. No traps will be used unless all other means fail, in which case no half way measures will be employed. In the interest of good sportsmanship and the North Weymouth Improvement Association, Edward Brown, secretary.

As the Automobile Legal Association is now affiliated with the Massachusetts State A. A., that means practically all the motorists of Massachusetts will be warned, the newspapers also having agreed to help out. The motorists who were handed cards last Sunday entered into the spirit of the request, and there was no complaint of unreasonable driving on the part of motorists that day.

MOTORISTS ENJOY NOVEL MOUNTAIN TOUR

HICKORY, N. C., May 23—The sight of a string of eighteen motor cars skimming along over mountain roads at altitudes from 1,500 to 4,500 feet astonished the mountaineers of the Blue Ridge in a recent Mayday outing. It also delighted a merry party of seventy men and women from the lowlands.

The time was from May 12 to 16. The occasion was the mountain-pike motor trip ot the Carolina and Northwestern railroad. The purpose was to prove the accessibility and adaptability of 100 miles of good mountain roads. The tour originated in the mind of Captain L. T. Nichols, general manager of the Carolina and Northwestern, a little independent railroad which runs northwestwardly from the cotton fields at Chester, S. C., to the mountains at Edgemont, N. C. Out of forty invitations, eighteen car owners accepted. The scheme provided free transportation for their machines and themselves from the point where they reached the Carolina and Northwestern.

A special freight train hauled the motor cars from all along the line to Edgemont on the day before the start. A Charlestonian in a White steamer ran 139 miles to Chester to catch this freight. The start was made at Edgemont at 3:30 o'clock Thursday, May 12, and the first car ran into Linville, 18 miles away, at 7 o'clock. The high-wheeler, the bell-wether of the flock of motor cars, went lame a time or two on the road, and delayed the rest. The ascent was from about 1,500 to 3,800 feet at Linville, passing the 4,000 mark en route. The engineer of this road, J. R. Ervin, of Lenoir, was one of the party and said that for the first 3 miles the maximum grade is 6 per cent, and after passing Cary's flats, half way, it is 5½ per cent.

As the cars mounted to an altitude of from 2,700 to 3,500 feet the people who know about motors sat up and took notice. The majority of the cars began to develop carbureter trouble, due to the rarity of the mountain air, so it meant low gear for the running. The machinists in the crowd of seventy—and there were half a dozen of these experts—said that by some contradiction of nature, this sort of air condition helped a steam engine while it choked a smaller. The remedy, it was said, was to change the mixture. At any rate there was either the proper adjustment or else acclimatization of the machines, for on Saturday morning the 22-mile run from Linville to Blowing Rock was made on high gear without the slightest trouble of this kind.

The Grandfather, 7,000 feet, is the towering peak of this region. Every now and then, as the caravan rounded a sudden bend, his Old Man profile, set upon an upheaving shoulder, would cast a patriarchal blessing upon this bit of wheeling civilization in the hemlocked wilderness. He awed with his rugged aristocratic mien in his nearer presence, while distance lent enchantment to his view. But far from or near him, one could not escape his colossal, haunting, Tyrian-blue omnipresence. Today he was feeling a bit headachy and his rocky forehead was tied up in a rag of cloud. Tomorrow, like sacred Fujiyama, he was blocked out in the mist like a rare Japanese print.

At Sunset Rock a car stopped and its occupants, disembarking, looked below from its edge. The cottages of Linville cuddled down in the deep, distant vale, 3 miles away, while over them brooded the shadowy, sheltering Silence of Solitude like a hen over her little family. The fair photographer of the tour gazed a moment and then she quoted Oliver Wendell Holmes: "When soothing silence comes to heal the wounds of sound."

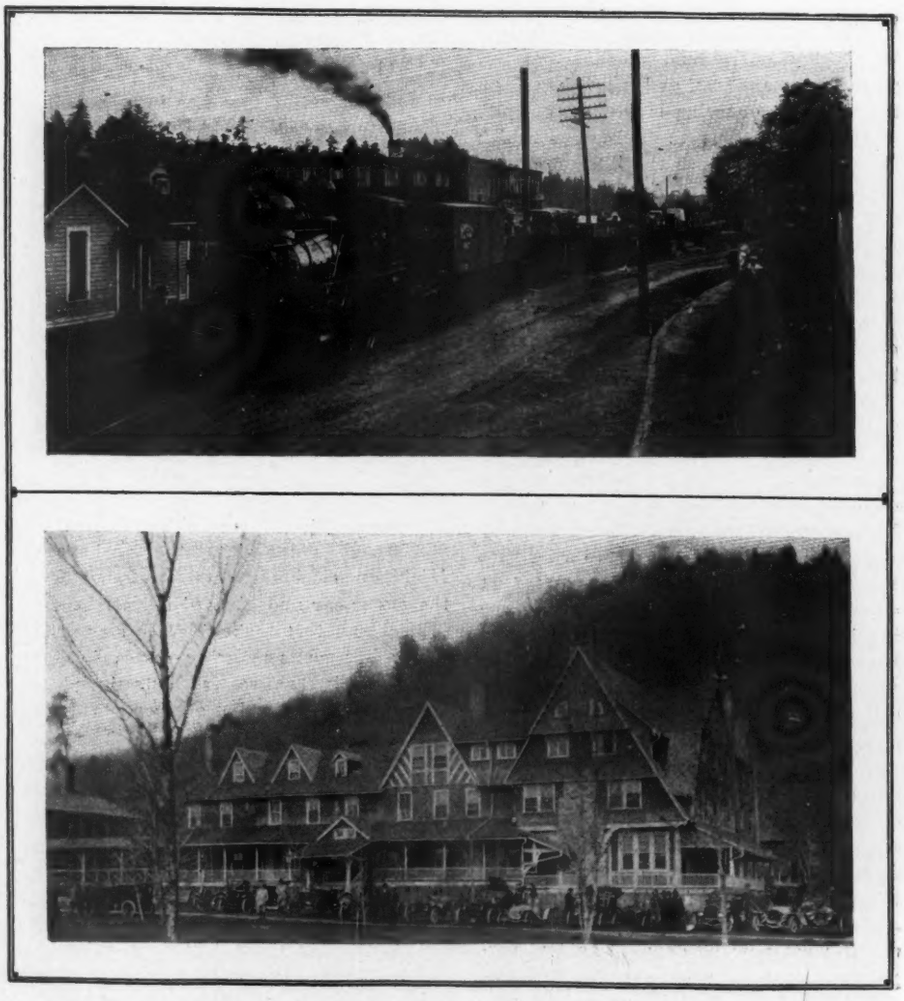
General Manager Nichols looped-the-loop from poetry to prose. Said he: "You can travel to the cure in a motor car on a 6 per cent grade!"

Before huge fireplaces ablaze with veritable saw logs at the Eseeola inn at Linville the party shucked its wraps. The razor edge of an appetite whetted on ozone was taken off in Mine Host Vining's dining room. "I try to be individual," said he. "I base my menu on domestic cooking."

The whole of Friday, May 13, was spent at Linville, fishing for trout in the lake and streams, golfing or climbing the Grandfather, while the motors, like bees from a hive, went buzzing about all day after the honey of adventure.

The run over the famous Yonahlossee road, the trail of the Big Bear, 22 miles from Linville to Blowing Rock, was made Saturday morning in from 2½ to 3 hours, and after another raid on the dining room, this time at the hospitable Watauga hotel at Blowing Rock, an afternoon run of 10 miles and back was made to picturesque Boone, the county seat of Watauga county and named for the immortal pioneer, who lived here and blazed the path for a motorized civilization. His trail up the Yadkin river and its crystal-clear little tributaries still is pointed out. It was the way he crossed over into Tennessee and Kentucky.

On Sunday the signs of disintegration were in evidence. Another 22 miles to



TRAIN THAT CARRIED MOTORISTS UP THE MOUNTAIN
CAROLINA MOTORISTS IN FRONT OF ESEEOLA INN AT LINVILLE

Lenoir and the circle of the tour was complete. In the morning and in the afternoon the party, in sections, reluctantly departed from this pretty village with its serried rows of eyrie-built cottages overlooking a far-away, blue-clad Philistine army of which the Grandfather is the Goliath.

The types of the eighteen machines in the tour were these: Four E-M-F's, two White steamers, a Ford, two Metzs, an Elmore, a Maxwell model E, two Buicks, two Reos, a Hupmobile and two high-wheelers of the International Harvester Co. make. A car 4 years old which had traveled 35,000 miles entered the tour with a damaged transmission. It was taking too great risk and stopped still on the mountain near Edgemont. This and two broken springs were the only casualties.

The fascination of motoring for the mountaineers was more interesting than the scenery. They swarmed out at every hamlet, many to see the cars for the first time. At Cary's Flats, for instance, there were 100 gathered. The children were pretty, rosy-cheeked and clad in red, blue and other glaring colors. Their mothers and grandmothers were faded. A number of the men carried old muzzle-loading rifles, which their forefathers had doubtless used at the battle of King's mountain. The party felt relieved when they said they carried the guns to shoot ground squirrels, which were playing havoc with their corn. A white-haired fiddler played "Old Dan Tucker" and "Mississippi Sawyer," and other mountaineers danced to the rythmical patting of hands.

The children and old folks, too, piled into a couple of vacated cars, and would not be satisfied until they had been driven up and down in front of the country store. This was the case at every long stop. It was a stroke of unconscious policy, too, for it tended to allay prejudice against the invading motor car.

ASSEMBLY PASSES CALLAN BILL

New York, May 24—Special telegram—By a decisive vote the Callan bill was passed by the New York assembly Monday night and now is lying upon Governor Hughes' table awaiting official approval. The bill was sharply fought in certain particulars and in its present shape represents a series of compromises, some of which are agreeable to motordom and some are not. The measure provides for a speed limit of 15 to 30 miles an hour and for annual registration, the fees for which are scaled to correspond with the horsepower of the cars so restricted by the new law.

One of the features that was eliminated from the original bill as passed by the assembly was the provision to allow small cities and villages the right to regulate the speed of cars. This section was fought desperately by motorists all over the state and the senate finally passed an amendment taking the power to hamper motorists by local regulations out of the hands of the small towns.

In a brief way the new law provides the following rules for motoring: A speed limit of 30 miles an hour on any state highway; only one license number, which must not be allowed to swing, but which must be displayed both front and rear and must be illuminated in the rear, and easy to read at all times; drivers must be at least 18 years old unless accompanied by a licensed chauffeur; the speed limit in the larger cities may be 15 miles an hour; license numbers must be carried on plates 15 inches long by 6 inches high and the letters must be 4 inches high. The horsepower tax will raise the cost of New York registration from $1 as it is at present to from $5 to $20 a car, depending upon the power. Under 25 horsepower the fee will be $5 and ranges upward until the maximum fee is charged for cars having more than 50 horsepower.

The victory of the motoring interests in preventing the possibility of heavy, restrictive regulation by small cities has been a source of satisfaction to motordom generally. Pressure was brought to bear upon the members of the upper house from all sides. The Long Island Automobile Club was particularly active in this matter.

HIGH-WHEELER ACTS AS BELL-WETHER TO THE MOTOR FLOCK
LINEUP IN FRONT OF WATAUGA HOTEL AT EDGEMONT

FRANKLIN TREK CONCLUDED

Syracuse, N. Y., May 23—In 13 days, running through thirteen states, with an average of 250 miles a day, the 42-horsepower Franklin has just completed a 3,500-mile journey designated as the Franklin trek. In some particulars the trek differed from any tour ever made before. While speed was not primarily the aim, it was proposed to show that motor car construction had reached such a stage that touring, fast and far, day after day, without excessive fatigue of the passengers, was now a possibility. A party of four, joined here and there for a short distance by another tourist, made the run, starting from the Franklin factory at Syracuse. The runs were day runs. The engine went practically without stop from start to finish. It was stopped twice for slight adjustment. In neither case did the engine fail, but kept at its work night and day, running steadily while the car was in the garage at night as well as when it was out on the road during the day. The run was almost devoid of tire trouble. The forward tires were not touched from the time of leaving Syracuse until the return, and the rear tires went well through the run before the shoe of one of them was cut open on a road bristling with rocks.

Engineers Inherit A. L. A. M. Data

NEW YORK, May 26—The Society of Automobile Engineers, under the general managership of Coker F. Clarkson, has taken over from the Association of Licensed Automobile Manufacturers the data, records and good will of the mechanical branch of the A. L. A. M., the work of which branch was discontinued some 2 years ago. Up to that time, it will be remembered, the mechanical branch, composed of leading motor car engineers, carried on consistent work in its laboratory department, and it was due to the efforts of this mechanical branch that the standardization of certain car parts by the A. L. A. M. was made possible. The transferring of the data, records and good will of the mechanical branch to the Society of Automobile Engineers was made possible by formal action of the board of managers of the A. L. A. M. at its last meeting, at which time the transfer was unanimously decided upon. The Society of Automobile Engineers will continue the periodical publication of the specifications upon materials prepared by Henry Souther, and will continue along broader lines, the work to be done by the mechanical branch. Howard E. Coffin, president of the Society of Automobile Engineers, in addressing the A. L. A. M. on the matter, said:

The mechanical branch was discontinued some time ago, not because of any absence of the need for such an organization, but for legal and personal reasons. It is imperative to have at the present time concerted action among our motor car engineers.' Every purchasing department in the industry is being seriously hampered by the utter lack of uniformity in materials specifications which are being passed to them by our engineering department.

Every individual engineering department is a law unto itself in nearly all matters touching design and the preparation of specifications. Individuality of design is one thing and should be encouraged. Individuality in specifications is largely useless and should be restricted within reasonable limits. As a case in point, the engineering department of my own concern has lately delivered to our purchasing department material specifications upon which 6-month delivery dates are the best promised. As a direct excuse for this delay the mills report their utter inability to care properly for the multitudinous and special demands which are being made upon them by motor car engineers. Among the similar situations which confronted the mechanical branch some 3 years ago was the question of steel tubing sizes and deliveries. The tube mills reported to our investigating committee not fewer than 1,600 different sizes of tubing which they were asked to supply for the motor car trade. Few if any standard sizes could be stocked because of the minute and immaterial differences in the specifications in each individual case. The committee having this work in hand unearthed the further astonishing information that the specifications being turned in to the tube mills by individual car makers building only one or two models, covered not fewer than eighty distinct sizes or thickness of wall.

With purchasing orders in hand covering 1,600 different specifications through the comparatively limited range of the tubing diameters used in motor car work, it is small wonder that the expression of the tube mills management to our committee was "For God's sake, do something." The net result of the mechanical branch work in connection with the tube mills will be found in a printed and framed table supplied to every engineering department within the association. In this table were listed something like 150 sizes of tubing actually needed in car work and upon which practically immediate delivery was guaranteed by the mills.

President Coffin went on further to state that the S. A. E. is desirous of continuing the periodical publication of specifications upon materials. The society now has a membership of 300, including nearly all of the engineers connected with the motor industry in the country.

WEED WINS A DECISION

Chicago, May 25—Judge Sanborn, in the northern district of Illinois circuit court of the United States, handed down, May 20, a decision in favor of the Weed Chain Tire Co., Harry D. Weed, and the Parsons Non-Skid Co., Ltd., against the Excelsior Supply Co., and the Motor Appliance Co., which decision sustained the contention of the Weed company that the Excelsior Supply Co. has been infringing its chain tire patents by marketing the zig-zag tire chain. This case has been before the United States circuit court for some time. The infringement suit was based on patent No. 723,299, known as the Parsons patent, and issued March 24, 1903, which was for a tire chain to prevent skidding, said chain not being in any manner anchored to the tire.

In his written decision regarding the validity of the Weed patent and device, Judge Sanborn said: "The elements of the problem are that by all prior inventors it was supposed to be necessary to fasten the anti-skid device rigidly upon the tire or incorporate with it instead of it being left loose or flexible. * * * This changing of the universal idea that an anti-skid device must be securely fastened to the tire required invention, and the device described by the patentee * * * is fully capable of carrying out the inventive idea. There is an operative device, utility, a greatly improved result, commercial success, and the supplanting of all other like devices. * * * I think the patent fully operative, useful, not for a function, not anticipated basic to a large extent, fully valid and infringed. The defendants' grip is almost identical. The complainants are entitled to the relief asked."

BUICK LAYS OUT ROUTE

St. Louis, Mo., May 23—The Buick pathfinder, sent out by the St. Louis Automobile Manufacturers' and Dealers' Association to chart a route for the Star trophy, finished in St. Louis at 12:30 p. m. The car in 5½ days had made more than 500 miles, much of the distance through mud which it was almost impossible for a team of mules to pass through safely, and the car was stuck only once and stopped only once for repairing. Everywhere on the route the pathfinder was met by enthusiastic crowds and at all places road improvements were promised which will assure that the reliability run of 3 days will be a great success.

The car left St. Louis Monday, May 16, at 8:30 a. m. The route was a circuit of northeast Missouri and eastern central Illinois. The route in Missouri was as follows: St. Louis to St. Charles, from which place a delegation of citizens piloted it out over Boone's Lick road; through Flint Hill and on to Troy; to Eolia, where it was met by citizens from Louisiana; to Clarksville, where a second delegation of Louisiana citizens was waiting; to Louisiana, where the first night's stop was made and where the members of the party received one of the most enthusiastic receptions of the trip.

Second day: To Bowling Green, to Curryville, where a short stop was on the program; to Vandalia, where the second day's luncheon was taken; to Faber; to Ladonia; to Mexico, where the party stopped for the second night out.

Third day: Through Thompson, Centralia, Clark, Renick and into Moberly, where the third dinner was had, a midday meal; from Moberly through Cark, Jacksonville, Excello, Macon and into Clarence for the third night's stop.

Fourth day: Through Lentner to Shelbina, lunch being had at the latter town;

Coming Events of Impor-

May 27-28-30—Speedway meet at Indianapolis.

May 29—Spanish voiturette road race for Catalunya cup.

May 27-30—Two-day reliability run of Columbus Automobile Club, Columbus, O., to Indianapolis and return.

May 28—Hill-climb of Amateur Automobile Contest Association, White Plains, N. Y.

May 30—Oklahoma reliability run of Daily Oklahoman.

May 27-31—Reliability run of Washington Post, Washington, D. C.

June 4—Track meet of Quaker City Motor Club, Philadelphia.

June 4—Annual hill-climb of Worcester Automobile Club, Worcester, Mass.

June 7-11—Carolina endurance run.

June 11—Annual Giant's Despair hill-climb, Wilkes-Barre, Pa.

June 11—Road races of Portland Automobile Club, Portland, Ore.

June 14—Start of Glidden tour from Cincinnati.

June 18—Automobile Club of Maryland's hill-climb, Baltimore, Md.

June 18—Hill-climb of Upper Westchester A. C., Ossining, N. Y.

July 1-2-4—Speedway meet at Indianapolis.

July 1-10—Road carnival of licensed dealers at Los Angeles, Cal.

July 2—Reliability run of North Wildwood Automobile Club, Philadelphia.

July 2-3-4—Speedway meet at Los Angeles, Cal.

July 4—Track meet of Motor Club of Wildwood, N. J.

July 4—Track meet of Dallas Automobile Club, Dallas, Tex.

July 4—Track meet of Cheyenne Motor Club, Cheyenne, Wyo.

July 4—Hill-climb of Automobile Club of Auburn, Auburn, N. Y.

July 4—Track meet of Minnesota State Automobile Association, St. Paul.

July 11—Hill-climb of Plainfield Automobile Club, Plainfield, N. J.

July—Hill-climb at Richfield Springs, N. Y.; middle of month.

July—Road race of Grand Rapids Automobile Club, Grand Rapids, Mich.; middle of month.

July 18-23—Milwaukee Sentinel trophy. Tour of Wisconsin State Automobile Association.

July 30—Track meet of North Wildwood Automobile Club, Wildwood, N. J.

from Shelbina through Lakenan, Hunnewell, Monroe City and Palmyra into Hannibal for the fourth night's stop.

Fifth day: Across the Mississippi river into Illinois, after a fast run through New London, Atlas being the first town reached on the east side of the river; thence to New Hartford, Pittsfield, Milton and Montezuma, the Illinois river being crossed at the latter place; thence to Roodhouse, where the fifth night's stop was made.

Sixth day: From Roodhouse to White Hall; thence to New Providence, to Carrolltown, to Jerseyville, to Godfrey, to Alton, to Nameoki, to Granite City, to Madison, to Venice, to Brooklyn, to East St. Louis, thence across Eads bridge into Missouri soil, finishing at the St. Louis headquarters of the Buick, Twelfth and Locust streets.

NEW METHOD OF SELLING

Indianapolis, Ind., May 21—A 3 days' trade extension trip in motor cars will be made by the Indianapolis Trade Association, starting from Indianapolis May 31 and visiting a number of Indiana cities. The purpose of the trip will be to interest merchants in the cities visited in the products of Indianapolis factories and merchandise of wholesale and jobbing concerns of this city. It has been arranged to visit Noblesville, Tipton, Logansport, Peru, Warsaw, Goshen, Elkhart, South Bend, Michigan City, Wabash, Marion, Alexandria and Elwood, and more than 400 miles will be covered in the 3 days. In the cities where night stopovers are made, merchants of the cities will be taken for rides. The association, recently organized, has 250 members, including all lines of industry and merchandise. The Overland Company has promised to donate the services of sufficient cars and drivers for the trip. It was first planned to make the trip in special electric interurban cars, but this arrangement was changed later in favor of cars.

tance in Motoring World

August 1—Reliability run of Minneapolis Automobile Club, Minneapolis, Minn.
August 1-September 15—French industrial vehicle trials.
August 4—Annual hill-climb of Chicago Motor Club at Algonquin, Ill.
August 15—Start of Munsey tour.
August 17—Track meet at Cheyenne, Wyo.
August 31—Reliability run of Minnesota State Automobile Association.
September 2-3-5—Speedway meet at Indianapolis.
September 3—Reliability run of North Wildwood Automobile Club, Wildwood, N. J.
September 5—Track meet at Wildwood, N. J.
September 5—Track meet at Cheyenne, Wyo.
September 5—Speedway meet at Los Angeles, Cal.
September 5—Road race of Denver Motor Club, Denver, Colo.
September 5-10—Track meet at state fair, Minneapolis, Minn.
September 9-10—Track meet at Providence, R. I.
September 10—Mount Baldy road race, Los Angeles, Cal.
September 10-11-12—Track meet at Seattle, Wash.
September 17—Track meet, Syracuse, N. Y. down the offenders of this rule.
September 18—Track meet at Syracuse, N. Y.
October 1—Vanderbilt cup race.
October 3—Reliability run of Louisville Automobile Club, Louisville, Ky.
October 7-8—Speedway meet at Los Angeles, Cal.
October 6-7-8—Track meet at Santa Anna, Cal.
October 8—Fairmount Park road race, Philadelphia, Pa.
October 15-November 2—Show in Paris promoted by Aeronautical Society.
October 15-16-17-18—Annual 1,000-mile reliability run of Chicago Motor Club.
October 20-21-22—Speedway meet at Atlanta, Ga.
October 23—Road race, Portola cup, San Francisco, Cal.
October 27-28-29—Track meet at Dallas, Tex.
November 5-6—Track meet at New Orleans, La.
November 6-9-13—Track meet at San Antonio, Tex.

Franco Car Targo Florio Winner

PALERMO, SICILY, May 16—Averaging close to 36 miles an hour, Boillot in a Lion-Peugeot won the voiturette cup race today which was run at the same time as the once famous Targa Florio. Boillot's time for the 186.6 miles was 5 hours 20 minutes 43⅘ seconds, or 1 hour 27 minutes 15 seconds faster than the time required by Goux, also in a Lion-Peugeot, when he won the race in 1909. The Targa Florio was won by a Franco.

This year the voiturette race turned out to be a match among the three Peugeot small cars as the three de Dion-Bouton voiturettes, the only others entered, did not start. Notwithstanding this the contest among Boillot, Giuppone and Goux turned out to be a grand race and even if Boillot won handily, by close to 5 minutes, from Giuppone and while the latter outran Goux by about 6 minutes, it was one of the prettiest and hardest-fought races ever seen since the Sicily meeting was first promoted.

The race was held over what is claimed to be the most difficult circuit among the score of famous courses upon which big races have been run in Europe. With its several hundred turns, its many serpentine and zig-zag roads, its up and down stretches galore, the route required careful driving. The three little French cars went through the race without any mechanical troubles and did something nobody ever expected them to—they finished all three ahead of the big cars which started at the same time they did and which competed for the Targa Florio cup, which was run at the same time.

Only five cars started in the Targa Florio, a Fiat, a Lancia, a Franco, a Sigula and an S. P. A. The Lancia was favorite and the Fiat was given sceond best chance. Two laps had to be run, to cover the required distance of 300 kilometers or 186.6 miles. The first lap or 93.3 miles was covered by Boillot in 2 hours 39 minutes 8⅘ seconds, establishing a new record for the Palermo circuit. Giuppone was second, a few seconds less than 3 minutes behind the leader and preceding Goux by less than 60 seconds. The Franco car was fourth. The second and last lap did not bring any changes in the position of the contestants. The Franco car won the Targa Florio, having covered the 186.6 miles in 6 hours 20 minutes 47⅘ seconds. The Lancia was second. The Sigula actually finished ahead, but it was disqualified.

By winning again this year the small car race the makers of the Lion-Peugeot now have won definitively the Sicily voiturette cup or trophy which is claimed to be worth more than $2,000. Carioloto, who drove the Franco car, received $1,600 in cash as first prize.

TIRE SITUATION NOT ALARMING

New York, May 25—Special telegram—Builders of motor cars and tire manufacturers met in conference at the headquarters of the Association of Licensed Automobile Manufacturers yesterday and, after a full discussion and consideration of the tire question as it affects the owner, dealer and the car manufacturer, decided that the situation, so far as it relates to the purchase and sale of tires, need not be so pessimistically considered as some recent reports would indicate. In fact, a more optimistic view now can be taken. The manufacturers of cars in America are not in the position where it is necessary for them at this time to contract for the next season's requirements of tires, and the rubber tire manufacturers seem to be able to handle the present situation along lines that are expected to be in favor of the car owner.

There seems to be an impression that it is necessary for car owners to purchase tires for future use, due to the feeling that there is to be an abnormal advance on this particular product in the near future. While some increase may be expected, car owners should be warned of the disadvantages that might occur in purchasing in advance of current needs. There is hardly any question that the saving at the present time will be largely offset by the deterioration in surplus tires and the passing of the guarantee period. It was the opinion of the conference that the interests of all will be served by a normal attitude toward future requirements.

BISONS PLAN BIG TEST

Buffalo, N. Y., May 25—Special telegram—The Automobile Club of Buffalo will conduct, during this summer, a 4 or 5 days' reliability touring contest of not less than 200 miles each day, starting and finishing each day at Buffalo.

OFFICIALS TAKING BODY MEASUREMENTS IN GERMAN TEST

Germany's Long Test of Small Cars

BERLIN, May 16—The first small-car reliability trials promoted in Germany by the Kaiserliche Automobile Club and in which eleven manufacturers had each entered a team of three cars, resulted in six concerns being awarded gold medals. The cars made by these concerns are the Brennabor, Durkopp, Dux, Hansa, Loreley and Protos.

The trials, which extended over a period of 4 days, during which time 615.2 miles had to be covered, may be considered as the most important event which has taken place in Germany, from a motoring point of view, next to the creation of the Prince Henry tour. The missing link for the development and popularizing of the small or medium-priced car has now been established, and it would be surprising if this event would not become in the next year or so quite as important, as interesting and as far-reaching in its effect upon the industry as the big car event, otherwise known as the big tour.

The Dixi cars do not figure among the winners of the gold medals, although it is considered they are entitled to one. All three of the Dixis went through the 4 days' running without a hitch, without having to be stopped for any kind of mechanical trouble. Yet because the driver of one of the cars was unfortunate in reaching one of the controls behind schedule time, the team lost its clean score. On the other hand, the Protos team gets a gold medal, a clean score, although one of its cars met with a rather serious mishap, which resulted in a front spring being broken. The driver was, however, a fast and good repairman and replaced the broken spring with another he had in the car and succeeded in reaching the day's control on time.

On the first day of the trials the cars went 171.1 miles. Not long after the start a Komnick had a throttle pin broken. One of the Bermann-Metallurgique cars had brake trouble, another Komnick had carbureter trouble. The third one arrived late at a control. This put the Komnick team out on the first day. During the day's run there were eight controls, besides several secret checking places. The distance from one control to another was scheduled to be made at a certain average which varied from 18.6 miles to 21.7 miles an hour.

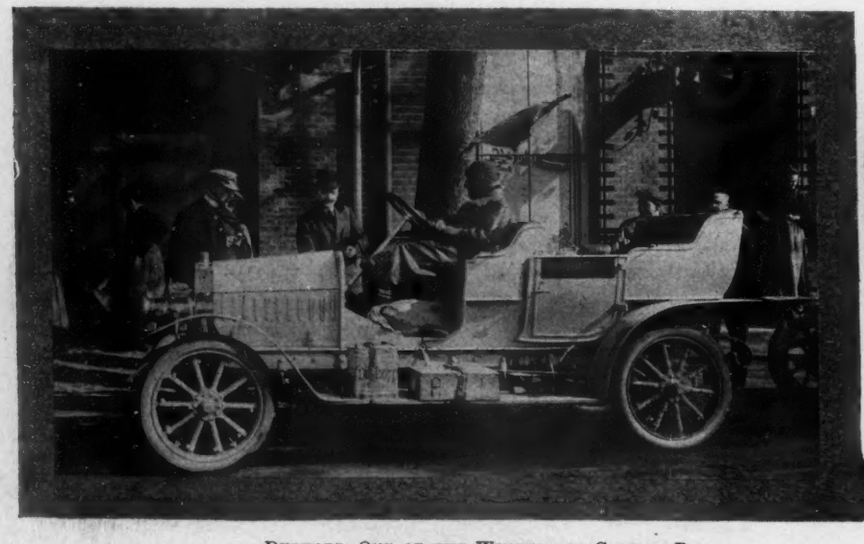
On the second day the run was 151.8 miles. It was upon a slippery stretch near Stadthagen that one of the Protos cars suffered its broken front spring. There were eight controls and four different rates of speed had to be observed at intervals, namely, 18.6 miles, 19.9 miles, 21 miles and 21.7 miles. These various rates of speed did not succeed each other in this order, but some times a low pace was scheduled, to be followed by a little faster one and then the fastest and then the lowest again. The contestants did not seem to be bothered about this and none lost any points.

The tourist schedule on the third day was 157.6 miles. It was through a very hilly country, with many turns. All the cars went through without trouble but two, a Dixi and a Maf, were penalized because they were late at a control. On the fourth and last day the contestants drove 134.7 miles. There were many hilly

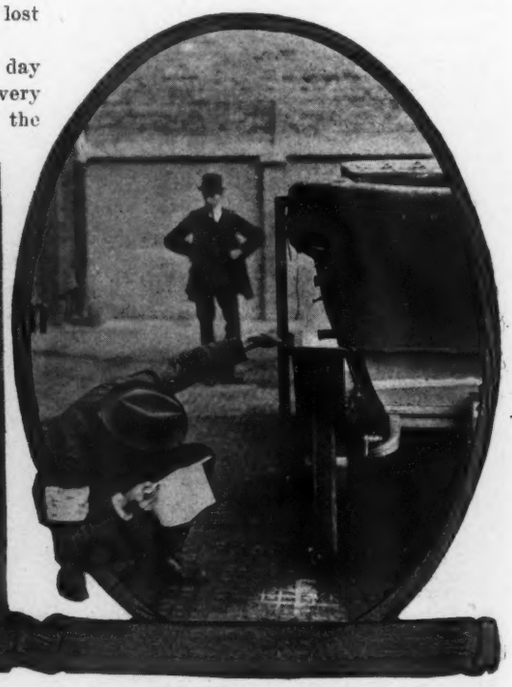
TABLE SHOWING SPECIFICATIONS OF

Name	Bore	Stroke	H. P. rating for trials
Apollo	2.75	4	5.99
Brennabor	2.96	3.3	5.9
Bergmann	2.8	3.7	5.96
Dixi	2.95	3.5	5.99
Durkopp	2.76	3.9	5.99
Dux	3.4	2.95	5.98
Hansa	3.3	2.95	5.96
Maf	2.38	3.5	3.95
Loreley	2.75	4	5.99
Protos	2.75	4	5.99
Komnick	2.75	3.9	5.88

All the cars have four-cylinder motors. All reverse. All have four seats except the Maf,



DURKOPP, ONE OF THE WINNERS IN GERMAN RUN



INSPECTING THE SPRINGS

GERMAN OFFICIALS CAREFULLY WATCH ALL DETAILS

Demonstrates Quality of Product

CONTESTANTS IN SMALL-CAR TRIALS

A.L.A.M. H. P.	Circulation	Weight of chassis, in pounds	Weight of each car ready to start, in pounds
12 1-10	Air	1,485	2,087
14	T. S.	2,002	2,032
12 1-4	T. S.	1,740	1,784
14	Pump	1,650	1,738
12 1-10	T. S.	1,870	2,070
19 2-5	T. S.	1,760	1,950
19 2-5	T. S.	1,760	2,021
9	Air	1,155	1,414
12 1-10	T. S.	1,925	1,958
12 1-10	T. S.	1,705	1,966
12 1-10	T. S.	1,694	2,087

are shaft-driven. All have three speeds and which has two. T. S. signifies thermo-syphon.

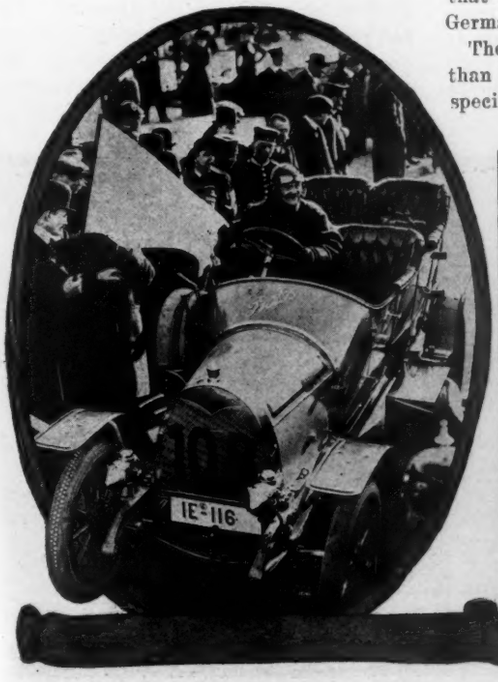
stretches, but also some fine level roads. There were no more road troubles and all arrived on time.

All the contesting cars except the Maf had bodies carrying four passengers, but as only the driver was permitted to be in the car, sacks of sand were put in, a sack weighing 154 pounds, representing a passenger.

That these small-car trials were awaited by the public and will have a beneficial influence upon the industry, there is no doubt. All along the route, every day, there were many people gathered, and at the various controls there were sometimes throngs. It was not so much a case of curiosity, but the spectators were of the class which has the means of buying a small car and therefore interested in the contest, eagerly reading the reports of the trials and when they could get there, they were found among the spectators lined up along the road.

Promoters and contestants seemed to be well satisfied, and it can be safely stated that this will become an annual event in Germany in the future.

The trials were open to cars of not more than 6 horsepower, according to the rule's special rating scheme. As a matter of fact, the power of the cars ranged from 6 to 14, and possibly more. Several which did not entirely come up to the body regulations had to be altered.



PROTOS, A GOLD MEDALIST

BRENNABOR CAR WINS MEDAL IN GERMAN RUN

AUSTRIA'S MOTOR BUSINESS

Vienna, May 14—Compared with 1908, the past year has been the best Austria has recorded thus far with reference to its motor export and import business. Cars, parts and motor cycles of a total value of $821,018 were exported by the home manufacturers, which was $51,558 more than in 1908. On the other hand, similar goods of a total value of $2,353,328 were imported, or $415,632 more than in 1908. Thus in 1909 the Austrians bought $1,532,310 worth more cars, parts and motor cycles than they sold. In the total of $2,353,328 is included $245,320 representing the value of the imported parts and accessories, and $274,366, which is the value of the imported commercial or industrial motor cars or chassis. The value of the motor cycles which were imported is of no great importance.

The bulk of the cars imported—or chassis—nearly $1,650,000 worth—were of class 2; namely, those weighing from 880 to 3,960 pounds. Most came from Germany and France, Italy being the third largest furnisher. Cars weighing more than 3,960 pounds came largely from Germany and Italy, with Switzerland third on the list. More than half of the exported chassis weighed from 880 to 3,960 pounds. The countries which bought them, according to the importance, were Germany, Great Britain, Russia, Italy, France, Bulgaria, Roumania and Switzerland. Germany was also the heaviest buyer of the chassis of more than 3,960 pounds, Montenegro followed, then came France, Russia, Italy, Bulgaria, Roumania, Servia. The imported commercial vehicles came in largest quantity from Germany and Switzerland. Those which the Austrians exported went to Germany, Russia, Montenegro, Great Britain, Italy and Japan.

NEW ORLEANS MOTORISTS HAVE THE GOOD ROADS FEVER

Louisiana Tries New Road Scheme

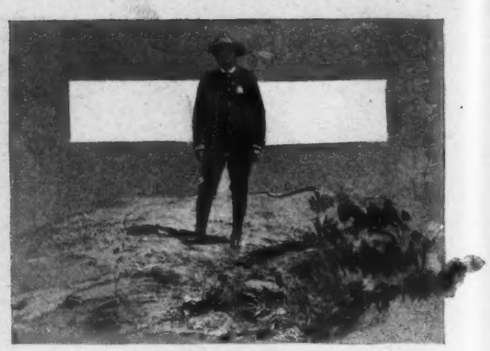
NEW ORLEANS, LA., May 21—Louisiana, a state which has not made itself known particularly as active in the wide spreading movement for good roads, has mapped out a plan of progress which has been started in New Orleans, and which probably will do more to open up this section of the south than anything which has happened in recent years. The importance of good roads, with the lessened cost of transportation, the increase of motor touring with the accompanying influx of money, and the general development throughout the commonwealth have been realized. Convict labor, a subject which has been given serious consideration in many cities and which has been tried with more or less success by a number of others, is being employed in this enlivened portion of the country with every indication of its success. Not only will the highways be made better, but the prisoners of the state will do a work which benefits the entire state instead of spending their time in idleness, or in a series of occupations which only pay for their own expenses.

History of Movement

The history of this movement for good roads is an interesting one inasmuch as it has taken 2½ years to bring these plans to a culmination and to show actual progress in the work. New Orleans as a city is a great surprise to northerners, for its reputation for quaintness, old style, and a general old-world air, is a misnomer and does it a great injustice. It is very likely that New Orleans from a modern standpoint could teach some very valuable lessons to some of its northern brothers who consider themselves the acme of aggressiveness. In the matter of its fine streets, large, substantial buildings, and beautiful residences, it is not surpassed by any northern municipality, and it is perhaps this prevailing spirit of progress which has influenced the promotion of the Motor League of Louisiana, a body which is composed of well-known and influential citizens, with a steadily growing membership. The necessity for good roads in the state was at once appreciated upon the formation of this organization and just 2½ years ago the campaign for improved highways was begun by P. M. Milner, the president, and Victor Aschaffenberg, secretary of the organization.

Improving Chef Menteur Road

It was figured that $30,000 would be necessary to complete the first road in order to show the advantage of the improved service if extended throughout the state, and it was decided to select a certain old trail, built 80 years ago and leading to Chef Menteur, which would extend a distance of 23 miles and would open up a country renowned for its fishing and hunting and would allow the trip to be made in a couple of hours by motor to



GUARD THAT WATCHES CONVICTS

grounds which could only be reached by train or by boat at certain times of the day and in several hours.

When this route was announced the failure of the plan was at once predicted because the road was at that time absolutely impassable and lay through a country of luxuriant southern foliage, where splendid live oak trees and hanging Spanish moss formed an archway overhead. Chef Menteur has a splendid natural harbor and it formerly was open to the Gulf of Mexico, but the Louisville and Nashville railroad 50 years ago built tracks across the outlet, compelling all vessels to go to Rigolets. Recently the United States government engineers have pointedly recommended that this railroad build a drawbridge, thereby giving a coast to Chef Menteur for yachts, and lumber and oyster schooners, and making a road 30 miles shorter through Lake Borner from the gulf into the Mississippi at New Orleans.

It was soon found that $30,000 could not be raised among the motorists whose interests could be enlisted, but this did not deter the moving spirits of the new club, and seven of the men contributed $100 each for a survey of this road to be made through the city engineer, W. J. Hardee. The survey was reported most favorably and the scheme was pronounced thoroughly practicable, so that the movement was started in earnest. The first assistance was received from Mayor Martin Behrmann

FINE STRETCH OF HIGHWAY ON CHEF MENTEUR ROAD

EARNING THEIR KEEP

CONVICTS ARE EMPLOYED TO MAKE GOOD ROADS IN LOUISIANA

City Co-operates With Motorists

and the city council which passed an ordinance unanimously, appropriating $2,000 for experimentation as to the best type of road surface. The mayor gave his personal assurance that if the road was constructed it would be maintained by the city, being within the city limits. It might be stated here that New Orleans has the largest area of any city in the country, having 265 square miles within its boundaries, although only 70 square miles are populated. Of the 23 miles to its destination only 18 had to be constructed by the league inasmuch as the remainder was composed of city asphalt streets and a series of splendid shell highways in the suburbs.

About this time Governor Sanders, himself a good-roads enthusiast, devised a new scheme of using the convict labor in the open country rather than in the closed prisons or on the state farms. The failure of other cities in this particular was assigned to the fact that they farmed the criminals out and there were many serious complaints against the treatment of the latter, who were entitled to at least human consideration, so this up-to-date chief executive arranged a new plan.

How It Was Done

In Louisiana the governor has the right to furnish convicts for other work than on the cotton and sugar plantations of the state as long as they are not leased. On these farms they have paid their own expenses, but at times there are more convicts than are necessary, so in conjunction with the motorists it was arranged by the state authorities late last fall to organize camps of twenty-four negro convicts each for work on the roads. The white prisoners are used in the commissary department and of course all of the men are watched by armed guards constantly.

The Motor League of Louisiana agreed to take the first camps upon the following basis: To pay for all feed, the salary of the armed guards, half the cost of the resident engineer, and the fee of the visiting physician who inspects the negroes three times a week, and the state agreed to furnish the camp equipment consisting of a commissary wagon, one or two berth wagons, a portable screened jail, and such tents and other outfit as was necessary.

On February 21 this year the actual work on this roadway was started and the first formal inspection took place on April 17. In just about 2 months, working 6 days a week, the convicts have dug ditches, and graded and crowned roads for a distance of about 4 miles, from Gentilly Road to Michaud Station, and they have given positive assurance of the success of this great undertaking. It is estimated that it will take 8 months longer before the preliminary or comparatively rough work is completed and perhaps within this time they may have an opportunity of putting on the top coat which will be one of gravel covered with a heavy dressing of asphaltum oil.

Inspected by Governor

Upon a pleasant Sunday in April there congregated at a prominent point in New Orleans a party of particularly distinguished persons who arranged to thoroughly look over the ground and to give especial attention to the conditions of the convict camp at Lee Station. A number of local motorists volunteered their services to carry the state and city officials to the scene of action, and the factory representatives of the Premier Motor Mfg. Co., who were at that time in the city, placed a six-cylinder Premier touring car at the disposal of Governor J. Y. Sanders, ex-Governor W. W. Heard, president of the penitentiary board of control, and Mayor Behrmann. E. B. Williams in a Premier carried E. E. Sykes and the newspaper men; A. J. Stallings in a Locomobile had J. J. Frawley, president of the city council, and James Reynolds, chief of Detectives; C. H. Ellis, president of the United Fruit Co., in his Peerless was accompanied by Henry Krohn and Captain John Deibert, a wealthy lumberman; and Palmer Abbot in his Packard carried Mr. Milner, Mr. Aschaffenberg, Joseph Schwartz and G. F. Boudereaux. Others in the party were E. B. Williams, E. J. Roderigue, M. B. Fetcher, and W. McK. White of the Premier company.

PREMIER ON PART OF CHEF MENTEUR ROAD THAT HAS BEEN IMPROVED

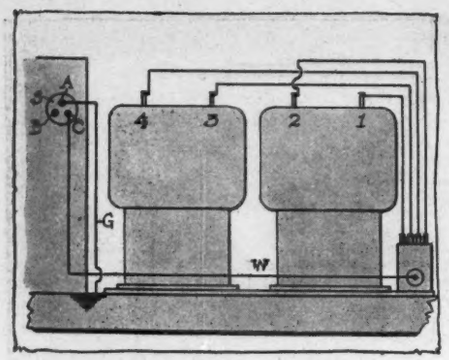


FIG. 1—HIGH-TENSION IGNITION WIRING

The Readers'

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

ENGINE FOR FEED GRINDER

NEW BRIGHTON, PA.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, tell me whether an engine, such as the Brush runabout motor, with a 4 by 5-inch single cylinder rated at 10 horsepower and running at 1,200 revolutions per minute, will give the same power on a feed grinder which would be run at 1,000 revolutions per minute as a stationary gasoline engine, weighing 2,000 pounds, with a 7½ by 14-inch cylinder, rated at 10 horsepower and running at 250 revolutions per minute, the stationary engine having a larger pulley to make the correct number of revolutions of the feed grinder? —Harvey Wise.

Theoretically you should receive just as much power from the motor car engine under the conditions above mentioned and perhaps a little more. Although the stationary motor is the more powerful, much of its power would be lost in gearing it up so that the speed of 1,000 revolutions per minute of the grinder could be obtained. It would be a question as to which would be the more practical. The motor car engine would not last long if run continually at a speed of 1,200 revolutions per minute, but its fuel consumption even at this speed would be less than that of the stationary engine by perhaps 50 per cent. If the grinder is not used continually but only for short periods at various intervals during the day the motor car engine might be found very satisfactory. It must be borne in mind that 1,200 revolutions per minute is excessive speed even for a motor car engine when run for days and weeks continuously.

CLEANING THE CRANKCASE

Stanley, N. D.—Editor Motor Age—Will Motor Age kindly inform me how often the oil should be cleaned out of the crankcase of a four-cylinder car, when using good oil? I have run an Inter-State for some 6 months, 1,100 miles in all, and the glass indicator on the dash shows the oil to be quite dirty. I never have drained the crankcase—merely added to the oil.—L. N. S.

The oil in the crankcase of the motor such as is described above should be changed about every 500 miles. Of course, one can leave the oil in indefinitely and keep adding to the supply daily according to the consumption but this is not a good practice for particles of carbon, and dust which is taken into the cylinders through the carbureter, and metal worn off the bearing surfaces will accumulate in the lower half of the crankcase, and if allowed to remain there the lighter particles are apt to be carried about with the oil and cause unnecessary wear of the bearing surfaces. It also is claimed that after oil is used over and over again for a long period of time, it loses much of its lubricating qualities. Therefore if the best service is desired and one would be on the safe side, it will be found most economical in the long run to drain all the oil from the crankcase of the motor about every 500 miles, put in about a quart or so of kerosene, run the motor for a few seconds, then drain the kerosene from the system, and refill with a fresh supply of lubricating oil.

SELDEN PATENT QUESTION

Scandia, Kan.—Editor Motor Age—Through the Readers' Clearing House will Motor Age give me some information relative to the Selden patent? Suppose a person should combine a gasoline motor and clutch to a farm implement, such as a threshing machine or corn sheller, or any other machine for that matter, is he not under obligations to pay a Selden license? When does the Selden license time expire? —J. W. Berry.

The Selden patent has reference only to self-propelled vehicles in which a compression-type of gasoline motor is used. It has nothing to do with stationary machinery such as you refer to. The Selden patent expires November, 1912.

TIP FOR TRANSCONTINENTALISTS

Rawlins, Wyo.—For the benefit of Motor Age readers, I wish to state that where hundreds of motor cars were compelled last year to secure permission to cross the Union Pacific railroad bridge on the North Platte river, Wyoming, where so much annoyance and delay was experienced by motorists, and many cars broken on the mile approach, there has been completed by the county of Carbon one of the finest wagon steel bridges to be found anywhere. The road has been much improved, culverts, and small bridges put in, so that any motorist contemplating a transcontinental tour along the Union Pacific railroad, need not anticipate any trouble getting through Wyoming.—E. Sundin.

ASKS FOR WIRING DIAGRAMS

Hazelton, N. D.—Editor Motor Age—Will Motor Age kindly publish diagrams for wiring low-tension and high-tension magnetos for two, four and six-cylinder motors?—F. J. Appert.

In Fig. 2 a diagram of a low-tension magneto ignition system for a four-cylinder motor is shown, and in Fig. 1, a diagram for a high-tension magneto system. The only difference between the diagrams for two or six-cylinder motors is that there will be two or six secondary leads or high-tension cables communicating between the magneto and spark plugs instead of four as indicated in the diagrams illustrated. In the low-tension magneto when in operation, the low-tension current is generated in the magneto and flows through the coil on the dash where a high-tension current is induced. The induced high-tension current returns to the distributer on the magneto and is distributed to the spark plugs. As the induction coil of the low-tension system is a separate unit several wires communicate between the magneto, coil and ground terminals. In the high-tension magneto system both the low and high-tension currents are generated in the magneto, and the secondary current is conducted to the spark plugs just the same as in the low-tension system. But as the induction coil is an integral part of the high-tension device, except for the high-tension cables leading from the distributer there is but one wire leading from the high-tension magneto. This is the ground wire which goes to the switch.

The wiring in all ignition systems differs to a certain extent according to the make of the ignition apparatus and the arrangement of the terminals thereon. Therefore it is difficult to give one or two diagrams that will cover all systems. However, as the principles are the same in almost all systems, the accompanying illustrations should be of service to you. For example, in all igniton systems where a true high-tension magneto is employed all that is necessary in the way of wiring is that there be the required number of high-tension cables leading to their respective cylinders, and a means of short circuiting the primary current generated by the magneto when it is desired to shut off the ignition. This is shown in Fig. 1. When the switch lever connected to the point A of the switch S is in contact with point B, the magneto is free to operate in the regular way, and as long as it is in operation sparking should occur at the plugs, but as soon as the switch lever is thrown over to the contact C the primary current generated in the magneto passes by way of the wire W, through the switch S and is

Clearing House

EDITORS' NOTE—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated

grounded through the wire G. Thus the magneto is short-circuited, no secondary or high-tension current is induced, and ignition or sparking ceases.

In the low-tension system, Fig. 2, when the lever of the switch S which is pivoted at the point A, is in contact with the point B, the current generated when the magneto is in action, passes through the primary wire P into the coil C, and out of the coil to the ground through the wire G. The secondary or high-tension current generated in the coil leaves by way of the heavily insulated cable E, and passes on to the distributer of the magneto from which it is synchronously conducted to the plugs. When the lever of the switch is swung over to the contact D, the primary current from the magneto is short-circuited just the same as in the high-tension magneto system, and instead of passing through the coil the current is conducted directly to the ground through the wire G1 and there is no more sparking at the plugs. In this diagram an extra ground wire G2 is shown and attention is called to the small spark gap K just between the high-tension terminal H and the terminal T. This is provided so that in case one of the high-tension cables should be disconnected, the induced current could jump across the gap K and prevent the coil from being punctured. If the diagrams shown herein do not meet your case, a more definite answer could be given if the name of the motor and type of the ignition system were given.

PECULIARITIES OF CHAMOIS

Racine, Wis.—Editor Motor Age—It is so common to see persons straining their gasoline through a chamois skin in order to prevent any water getting into the tank and causing trouble at the carbureter that most people perhaps think that water cannot go through the skin. Others perhaps have found water in their tanks after having strained everything that they had put in and consequently jumped at the conclusion that the chamois skin had a small hole in it and needed replacing. The writer has known of several parties who have purchased new skins for their gasoline funnels when the old ones were just as good as ever. The following experiment may be of interest to some and will cost nothing. Some time when the chamois skin in the funnel is dry, pour water onto it and see whether it will not go through as easily as the gasoline usually does. While the leather still is wet with water, try to pour gasoline through and to the surprise of many it will not go at all. The conclusion reached is that water will not pass through a porous substance saturated with gasoline and that the same is true as regards gasoline passing through when the substance is first saturated with water. In other words, the separating value depends upon the fact that gasoline and water will not mix and that in order to pass through the chamois a liquid must mix with the liquid which fills the pores of the leather. If, when the leather is dry, a small portion is wet with water and then the rest with gasoline, it will be found that both water and gasoline may be poured through the funnel, each choosing only that portion wet originally by the same liquid.—M. R. Wells.

SEEKS MOTOR LITERATURE

Chicago—Editor Motor Age—I am looking for a practical treatise on motor car and marine gasoline engine construction, and desire something that really goes into details, giving sizes of parts, etc. Does Motor Age know of any good book covering this subject fully?—F. A. Finck.

There are a number of good books on the market which go into detail very extensively on the principles of gasoline motor operation and design, but Motor Age knows of no publication which gives details on the sizes of parts, etc.

GALVANIT FOR PLATING

Onawa, Ia.—Editor Motor Age—Will Motor Age tell me through the Readers' Clearing House where I can procure the Galvanit powder for plating as mentioned in Motor Age, issue of March 3, page 14, in the article on the new plating process? I tried this formula using nickel salts with no results except a brilliant polish to the brass which I tried to plate. What should I have used if not the salts? Where can I procure the Typhon electric vibrator attachment for common reed horns? I saw these exhibited at several of the shows, but neglected getting the name of the firm handling them.—K. A. Pullen.

Galvanit may be secured from the Galvanit Co., 6057 George street, Hanover square, London, W., England. Motor Age is not in a position to state why the desired results were not obtained by you.

USE OF CONDENSERS

Detroit, Mich.—Editor Motor Age—The experiences of H. Ashbaugh, Motor Age, May 5, page 26, and C. W. Schwartz, May 12, page 22, in shunting condensers across the spark-plug gaps are not only interesting but valuable, as they show the value of a different form of spark from that ordinarily in use. The spark obtained by

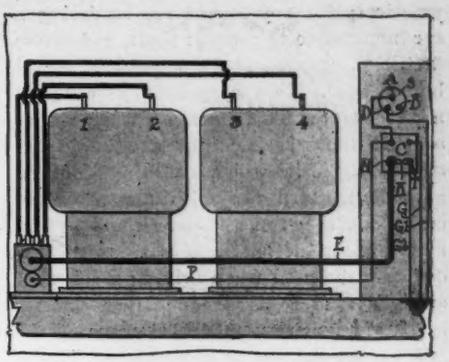


FIG. 2—LOW-TENSION IGNITION WIRING

shunting a condenser across the spark-plug gap is in reality the condenser discharge itself. The value of this condenser discharge lies in the fact that it is an oscillatory discharge, oscillating or surging between the spark-plug points at a tremendous frequency, probably several hundred thousand times a second. It is this surging action on the gas, coupled with the heat of the spark, which gives this condenser discharge its phenomenal igniting power. If Mr. Ashbaugh had experimented further he would have found that no matter how sooty or oily the spark-plugs, this spark still would jump across the points, while with the condenser removed, the spark would find its way around the insulation. Practically this same system is made use of in England by Sir Oliver Lodge in his ignition system for stationary engines. To secure condensers which will not break down under the great electrical strain, Sir Oliver makes use of glass Leyden jars, which, while bulky, answer the purpose admirably for large engines. Another means to prevent condenser trouble is to place the condenser in the primary circuit and step up this condenser discharge in special coils or oscillation transformers. This principle is made use of in the Seeley ignition system, and the spark obtained is practically the same as in the former case but the whole system is much simplified.—Irving W. Adams.

SUGGEST LOCKING DEVICE

Boonville, Ind.—Editor Motor Age—Through the Readers' Clearing House will Motor Age answer the following? I also would like to hear from any manufacturing concerns who might be interested. Would an attachment to a steering wheel column be practical that would permit the driver, at will, to lock the wheels on the center so they could not turn in either direction until unlocked by the driver by applying force on the steering wheel? I know such an appliance will work and would like to know if it would be practical. This appliance will work perfectly and all danger is eliminated. It will work only at the driver's will and will pass the center without locking when so desired.—A Reader.

If your idea would not involve serious mechanical difficulties, it should be quite

practical; for any means for rendering a car inoperative to prevent theft, and whose first cost would not be excessive, would be practical. As a suggestion, however, it might be possible to arrange your device so that the wheels might also be locked at an angle, in which case it would be possible to turn the wheels against the curb, lock them, and the car could not be moved from the spot. If you intend this device to be used when driving a car on a straight road so that the driver can remove his hands from the steering wheel and expect the car to keep in the middle of the road then your device is absolutely useless; if, however, you intended it as a lock to protect your car against theft when left by the curb, there is a measure of merit in it, although it is questionable if the same result cannot be obtained in a more direct manner.

PUZZLED BY IGNITION

Union, Ia.—Editor Motor Age—I have a two-cylinder 1908 Maxwell runabout, on which the battery ignition misses after a long, hard pull on high with the throttle open wide. In testing the batteries appear strong. It may be the trouble is in the coil, but why doesn't it fire as well under the above mentioned condition as at other times. The wiring, timer, and plugs apparently are right. In starting it generally misses until the engine warms up, after which it has all kinds of power.—P. R. L.

It is quite common that a motor should miss a little after starting cold, but as for the missing after a long, hard pull this is rather unusual. It does not seem as if the trouble should be in the coil unless it is due to a loose terminal which maintains a good contact as long as the motor is running steadily and somewhat slowly as would be the case under a long, hard pull, but as soon as the car is running at a higher speed, road vibration becomes greater and poor contact may be obtained at times at the loose terminal. Then again it is possible that when subjecting your motor to these long, hard pulls you find it necessary to carry the spark rather late, and the missing is due to an overheated condition. In Motor Age, issue of April 21, on page 16, rather a lengthy description of how a subscriber experienced trouble somewhat similar to your own is given. In this description you may find a great deal of useful information relative to a Maxwell car the same model as your own. It would seem as if your trouble might be due to weak batteries and it would be advisable to test them while the motor is running and as soon as it begins to miss. If the battery is all right, test the valve springs while the motor is running by pulling them toward the end of the valve stem so as to increase their tension. A weak or broken valve spring is often indicated by fits of intermittent misfiring. If the valve spring, for instance, has lost its original temper and is not working as it should, the tension of the weakened spring will not be sufficient to hold a valve properly on its seat, and the gas will partially escape and misfiring set in. It would be well to test the compression of your motor by cranking it over slowly by hand and noting if the compression is the same in both cylinders. To test the ignition start the motor, then open the relief cocks one at a time and see whether the missing occurs on one cylinder only or on both cylinders intermittently. Misfiring on one cylinder only, simplifies matters and a thorough inspection should then be made—first of the spark plug, then the wiring, and the points on the coil, the contacts and terminals of the timer and other features of the ignition system, etc.

BLACK FINISH FOR LAMPS

Chancellor, S. Dak.—Editor Motor Age—Is there anything that could be put on brass lamps to give them a black finish which would look well and also wear well?—E. C. Hofmeister.

Many lamps today are japanned, that is, painted with several coats of japalac or some other dark paint. Then again one often sees lamps which are coated for the most part with black enamel which is applied by means of a baking process. Many lamps are also given a gun-metal or black-enamel finish, which consists of changing the surface color of the metal itself by means of an electro-plating process. Motor Age knows of no substance that can be simply rubbed on to a lamp so that it will take on a black finish that would look and wear well. If you should desire to have your lamps painted or coated with a baked on enamel, it would be advisable to send them to some specialist in painting or enameling, whereas if a dark gun-metal finish is desired, the job would have to be performed by an electroplater.

COST OF MAINTENANCE

Redwood, Cal.—Editor Motor Age—The following is an absolutely correct report of the cost of operating a Buick, model 10, for a period of 1 year: Miles traveled, 12,543; tire expense, $300.12; gasoline, $135.75; oil, $35.05; repairs and sundry expenses, $326.66. Total, $797.58. Average cost per mile, .0635.—Lee H. Newhert.

TIMING HIGH-TENSION MAGNETO

Arcola, Ill.—Editor Motor Age—Will you please tell me how to proceed to time a high-tension magneto on a four-cylinder engine and how can the spark be gotten to trace the wires?—A Subscriber.

There are now several types of high-tension magnetos on the market and owing to the fact that the facilities for timing differ on some of these various types, perhaps a more definite answer to your inquiry could be given if the name of your magneto were known. In the April 28 issue of Motor Age, page 30, the timing of the Bosch high-tension magneto was described and illustrated, and general information relative to timing a motor of the four-cylinder type is to be found on page 26 of the May 12 issue. This most probably will be of assistance to you. In Fig 3 is shown a diagram illustrating the method of timing the U & H high-tension magneto. In this apparatus, as in almost all other high—and so-called high-tension—magnetos, there is a circuit-breaking device D, and a high-tension distributer R. And in all these types the spark occurs as the contact points P of the circuit-breaker near or reach the point of maximum separation, and it occurs in the cylinder indicated by the position of the revolving segment B of the distributer. Thus as per Fig. 3, with the points P separating, the revolving segment B of the distributer in the position shown, and traveling in the direction indicated by the arrow, the spark should occur in No. 1 cylinder when the motor is in operation. The cylinders of the motor indicated in this diagram fire 1-2-4-3, as may be seen by the arrangement of the cables leading from the magneto to the plugs, and the direction of rotation of the segment B of the distributer. The piston in No. 1 cylinder is about to descend on the explosion stroke. Some motors fire 1-3-4-2, so, when in doubt, one

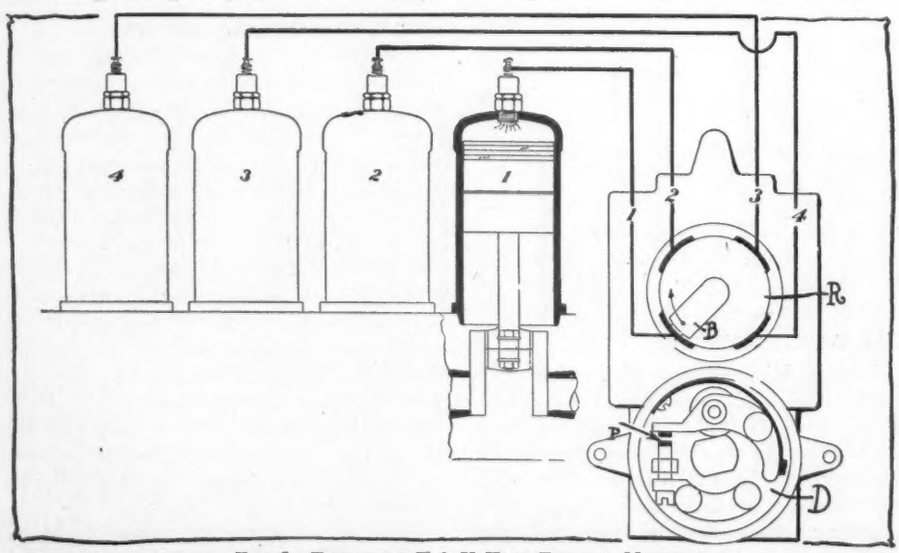


FIG. 3—TIMING OF U & H HIGH-TENSION MAGNETO

has but to watch the order in which either the inlet or exhaust valves operate to determine the firing order of the cylinders. It is not practical and generally impossible to trace magneto ignition by the spark, as with a battery and coil system, because in order to get a spark with a magneto it must be in operation; that is, the various contacts must be made and broken with fair rapidity in order that the primary current may be generated and broken, and the high-tension or secondary current induced and distributed to the plug to cause the spark. The U & H magneto has a special means for facilitating timing, and if your magneto is of this type kindly advise and Motor Age will describe it in a similar manner.

USE OF PICRIC ACID

Savannah, Mo.—Editor Motor Age—Will Motor Age through the Readers' Clearing House inform me if the use of ether or picric acid and sal ammoniac will injure the motor in any way if used occasionally or constantly? What are the results when used in proportions given in Motor Age, issue of May 12?—C. M. Christianson.

It is claimed that picric acid and sal ammoniac will have an injurious effect upon a motor if used constantly; ether, however, may be used continually if desired, as it is perfectly harmless chemically. Both of these substances will, of course, have a deleterious effect upon the motor, inasmuch as they increase the explosive pressures or enhance flame propagation; thus the wear and tear upon the pistons, cylinders and bearings will to a certain extent be greater than when an ordinary fuel is used.

WANTS FACTS ABOUT MOTORS

Reno, Nev.—Editor Motor Age—If consistent, will Motor Age kindly answer the following questions in the Readers' Clearing House?

1—Some of the United States torpedo and submarine boats use an internal-combustion motor of from 300 to 500 horsepower of the reversible and air-starting type. Will Motor Age give me in concrete form some information relative to the horsepower, number of revolutions per minute, cylinder sizes and number, type of ignition, type and sizes of valves, lift of the valves, and valve settings of this particular type of motor?

2—Some types of foreign submarines of 500 horsepower use a reversible gearing on the camshaft instead of a sliding camshaft with two sets of cams. How is this scheme carried out?

3—If Motor Age cannot give me this information, will it inform me where I can secure this data?

4—At present I am running a railway motor car rated at 200 horsepower on the Southern Pacific railroad through a mountain district, and as usual with gas engine operators find a few things that are very puzzling. One point in particular is that on the grade with a heavy load black

smoke pours out in great volumes around the No. 2 exhaust valve, showing an excessively rich mixture of course. What causes it? The valve setting is correct, the valves and piston rings are tight. This does not occur in any of the other cylinders.

5—Does the Bosch company build a reversible high-tension magneto this year?

6—What causes the magneto to fire correctly in all six cylinders with the circuit breaker box vertical, but beyond a certain amount of advance and retard to miss badly, and either increased to cause it to miss completely? Would weak field magnets cause this?—W. R. Harlan.

1, 2 and 3—Motor Age cannot give you this information, but would advise that you consult the manufacturer of the motor which you are operating, as they would most probably be in touch with the manufacturers of these high-powered motors.

4—The coarse black smoke which pours out around the exhaust valve is caused from burning gasoline, due to an overrich mixture.

5—The Bosch magnetos are all reversible in one sense of the word. They can be set to run either in a clockwise or anticlockwise direction. They cannot be fitted to a motor, however, that is designed to run in both directions, as is the case in some types of marine motors. They can be set to run one way or another, but in a strict sense of the word are not reversible, or has the company ever manufactured a reversible type of magneto.

6—In the majority of cases a magneto gives the hottest spark when fully advanced, and the weakest spark when fully retarded. It is by no means a common occurrence to have a motor miss when running at a slow rate of speed with the spark retarded, for then the amount of current generated is comparatively small, and the break of the primary circuit occurs at a point in the sine wave of the current generated, which is so far from its maximum pressure or intensity that either the spark is not hot enough to ignite the gases in the cylinder or the induced current is not of sufficient strength to jump the spark gap; thus no spark occurs, or if it does occur it is too weak to ignite the gases at the proper time. This might be caused by weak field magnets, as per your suggestion.

SIX FOR A MOTOR CYCLE

Kansas City, Mo.—Editor Motor Age—I am building an engine about which I would like to ask some questions. The engine is a six-cylinder 2½ by 2½, cast in series of three. The cylinders are V-shape and set apart one third of the distance around the crankcase. The crankshaft is a three-throw one with two connecting rods on each throw, or crankpin. I also have a patent for a scavenger to clean the explosion chamber. This engine is only 21 inches in length over all. The crank and every bolt are made out of chrome nickel steel. It is my intention to use the engine for a motor cycle and I will have high and low speed geared two-and-one-half-to-one on high and eighteen-to-one on low speed. Thirty by 3-inch wheels are fitted with Fisk rims. The arrangement of the cylinders is such as to allow a very low frame. Drive will be by bevel gears from the engine to the countershaft and double belt to rear drive wheel with idler tighteners. The engine can be easily cranked from the countershaft before mounting to ride. The machine is not a freak or junk, as I have taken my ideas from the most modern, up-to-date machines on the market. I have the T-head water-cooled copper waterjackets.

1—How deep should the compression space be? The accompanying illustration will show the shape of the compression chamber.

2—What horsepower should this engine develop according to the A. L. A. M. rating, and what would it develop if the scavenger is a success?—W. W. Brown.

1—You do not give the size of the valves or does your drawing give sectional views which would be necessary before a designer could approximate the depth of your compression chambers. It is impossible to design engines in these columns. The specific information is of little interest to others and the data given can hardly allow anyone to get closer than a rough guess. In Motor Age, issue of April 7, on page 22, a method of figuring compression space is given. This with the aid of the data which you undoubtedly have on hand will perhaps enable you to get the dimension asked. The shape of a cylinder head is an important factor in calculating compression space, and the amount of compression that you desire to use must be decided upon.

2—Your motor should give 15 horsepower according to the A. L. A. M. rating. Motor Age has no means of approximating the increase in efficiency that might be obtained by the use of your scavenger; if it is a success the increase in horsepower would depend upon the degree of its efficiency.

ARE MADE IN CANADA

St. Marys, N. B.—Editor Motor Age—Through the Readers' Clearing House, please inform me whether the McLaughlin-Buick cars made in Oshawa, Ont., Can., are the Buick chassis imported from the states, or whether it is all made on this side of the line.—A. J. Thompson.

The cars mentioned are manufactured in Oshawa, Ont. The object in doing this is undoubtedly to avoid the 45 per cent duty on cars imported into Canada.

One of the Michigan Products

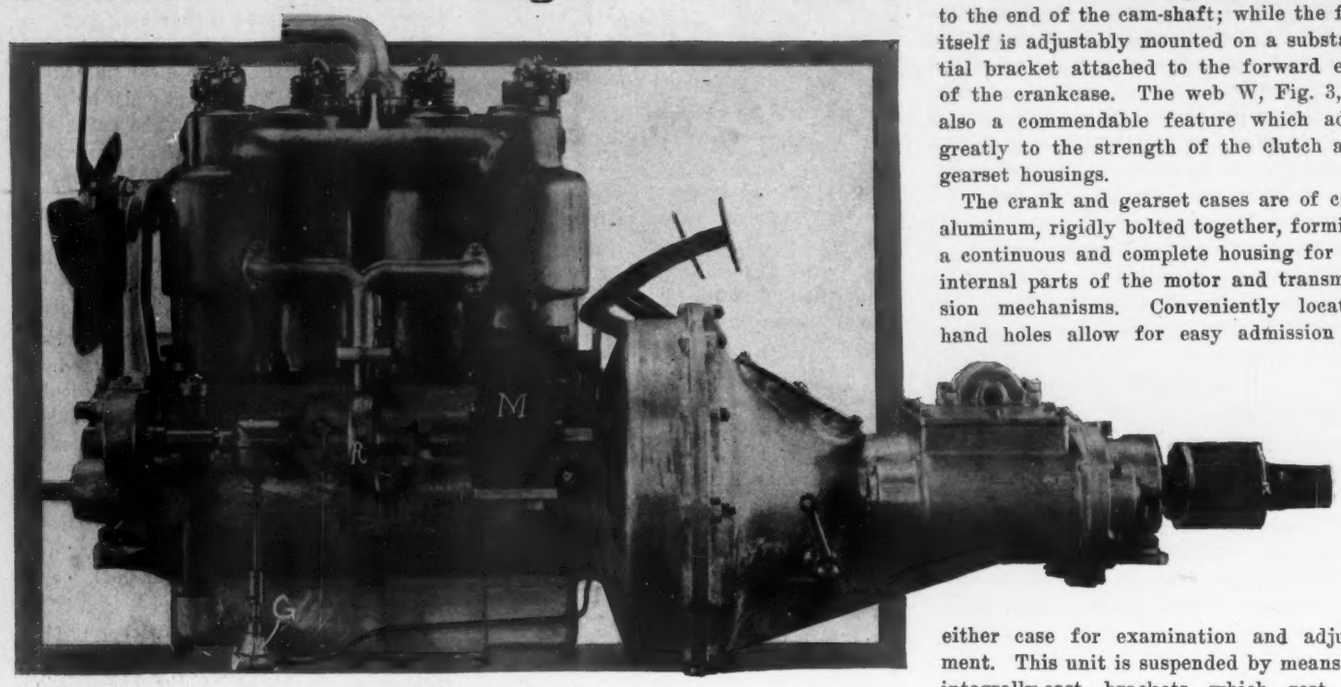


FIG. 1—A VIEW OF THE LEFT SIDE OF THE LION POWER PLANT SHOWING UNIT ARRANGEMENT OF MOTOR, CLUTCH AND GEARSET

IN combining a multiplicity of the most advanced features of modern motor car construction, and in order to produce a car that is as light as is compatible with strength, the Lion Motor Car Co., Adrian, Mich., is manufacturing a medium high-powered product at a moderately low price, which is known as the Lion 40.

Notable among the features of these cars which are made in touring or runabout types, are the unit power plant, comprising a four-cylinder, four-cycle, water-cooled motor, an inverted cone clutch and selective sliding gearset; a driveshaft inclosed in a torsion tube, a semi-floating rear axle, pressed steel frame of channel section, three-quarter elliptic rear springs, brakes of large diameter, an I-beam front axle, an irreversible type of steering gear with the tie-rod behind the axle, 36 by 3½-inch tires and a 112-inch wheelbase.

A glance at the accompanying illustration will serve to show the general arrangement of the various parts of the equipment. In Figs. 1 and 3 the left and the right sides of the unit power plant are illustrated and an idea of the general layout of the chassis may be obtained from Figs. 2 and 4. The side members of the frame are straight, except at the rear ends where they curve upward to form the support for the upper portions of the rear springs and provide ample clearance for action of the rear axle. These members are held together by four cross-members of channel section, three of which are gusseted to increase the rigidity of the frame, and the forward ones which support the power plant being of drop construction to lower the center of gravity, and bring about the desirable straight-line drive which is obtained when the car is loaded.

Attention is called to the simplicity and directness which prevails in the attachment of control rods, water and gas connections, etc., and to other features which make for strength and flexibility. The radiator is most practically located between the front cross-member and the front axle, and flexibly mounted in trunions T on the side members of the frame; thus it is free from the twisting strains, and clear of the axle when in action. The intake and exhaust pipes, and water manifolds as well, are of ample diameter, graceful in design, free from sharp bends, and their means of attachment are simple and accessible. The oil-pump G, water-pump R and magneto M, Fig. 1, are all arranged on the left side of the motor and driven from the same gear which is enclosed with the rest of the engine gears in an oil-tight case at the front end. To prevent crowding, promote accessibility and add to the symmetry of the whole arrangement, the carbureter is disposed on the right side of the motor and fan-belt pulley is attached to the end of the cam-shaft; while the fan itself is adjustably mounted on a substantial bracket attached to the forward end of the crankcase. The web W, Fig. 3, is also a commendable feature which adds greatly to the strength of the clutch and gearset housings.

The crank and gearset cases are of cast aluminum, rigidly bolted together, forming a continuous and complete housing for all internal parts of the motor and transmission mechanisms. Conveniently located hand holes allow for easy admission to either case for examination and adjustment. This unit is suspended by means of integrally-cast brackets which rest on cross members of the frame. The motor has a 4½-inch bore and a 5-inch stroke, which gives an A. L. A. M. rating of 32.4 horsepower. These dimensions might include this motor in the long-stroke class, and produce a slow-speed engine which is conducive to long life and efficient operation. The cylinders are made from specially selected close-grained gray iron, cast in pairs with integral waterjackets and valve chambers, and all are thoroughly tested after machining, and ground to size. Pistons are of the same materials as the cylinders, extra long, and fitted with rings which are turned eccentric, slotted, compressed, and ground on faces and sides. The piston pin is of extra large diameter, is also ground and hardened, and made hollow to provide for lubrication of the upper connecting rod bearings. Connecting rods are steel drop-forgings of I-beam section, with phosphor bronze bushings in the connecting rod ends and adjustable split bushings at the crankshaft ends which are lined with a special die-cast

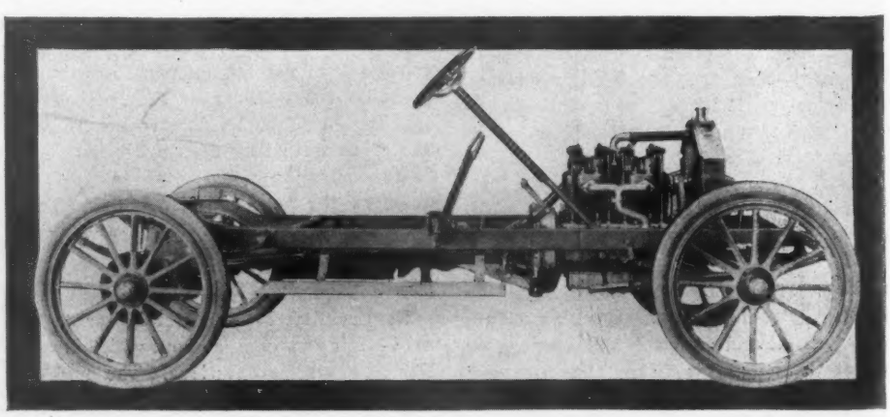


FIG. 2—A RIGHT SIDE VIEW OF THE LION 40 CHASSIS

The Lion Manufactured at Adrian

alloy. The crankshaft is a heat-treated steel drop-forging with an integral flange to which the flywheel is bolted.

All bearing surfaces are of liberal dimensions and ground to size, and the shaft is supported by three main bearings in the crankcase. A drop-forged camshaft also is employed, with the cams forged integrally. This shaft is carefully machined and hardened and then all bearing surfaces and cam faces are ground to size and shape. This shaft also is supported in three bearings, and may be removed from the case with the camshaft gear and fan belt pulley intact, by simply loosening a few bolts on the right side of the motor and taking off the plate P, Fig. 3, to which it is attached. Valves are drop forged with integral heads and are of extra large diameter in proportion to the cylinder bore, so that maximum power, and efficient cooling qualities are obtained. The intake valves are contained in chambers on the side of the cylinders as in an L-type motor and operated directly off the push rods, and the exhaust valves are contained in removable cages located in waterjacketed chambers in the heads of the cylinders, and operated by means of rocker arms and push-rods as shown. All valves are hardened and ground and of the same size.

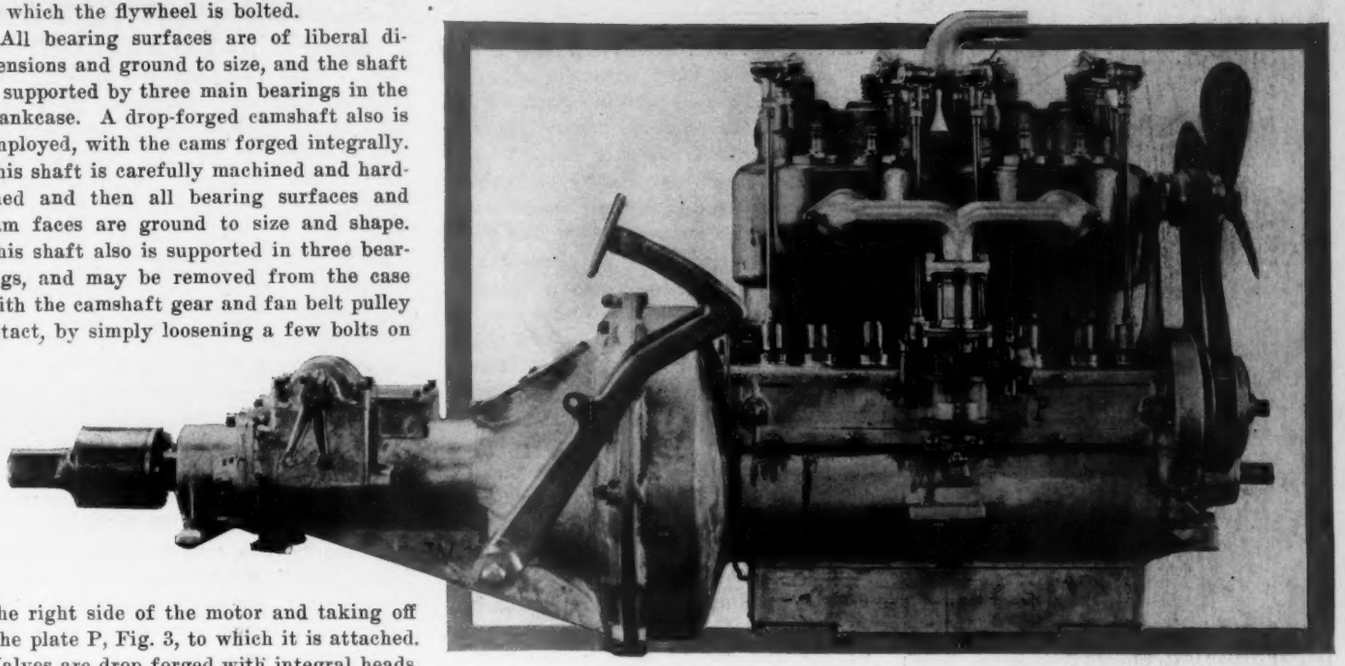


FIG. 3—RIGHT, OR INTAKE SIDE OF THE NEW LION 40 UNIT POWER PLANT, SHOWING SEVERAL INTERESTING FEATURES

Lubrication of the motor is by means of a self-contained circulating splash system in which the oil contained in a reservoir formed in a detachable lower portion of the crankcase, is drawn therefrom by a gear pump G, Fig. 1, and forced up into the crankchamber proper, where a constant level is maintained. An outside lead is also provided to carry lubricant to those parts not reached by the splash in the crankchamber.

Ignition is jump spark from a dual system with a magneto for regular service and batteries for starting. A honeycomb radiator, a fan, driven by an extra wide belt, and a centrifugal water pump, are features that cool and circulate the water that passes through the spacious waterjackets.

Both the clutch and the brakes are lined with thermoid friction material; and their operating pedals are mounted on the power plant itself. All gears and shafting in the gearset are ground to size wherever grinding is required, and the shafts which are short and stout are mounted on Hyatt roller bearings. Only one universal joint is employed between the power plant and the rear axle. This is located just behind the gearset, and is thoroughly encased and packed with grease. Roller and ball thrust bearings are employed throughout the rear axle; the brakes are of the internal and external type acting on the rear wheel drums; a worm-and-sector steering gear is fitted. Control of the car is conventional with spark and throttle levers over the steering wheel, gear-shifting and emergency-brake levers at the right of the driver's seat, and clutch and service brake pedals in their customary positions.

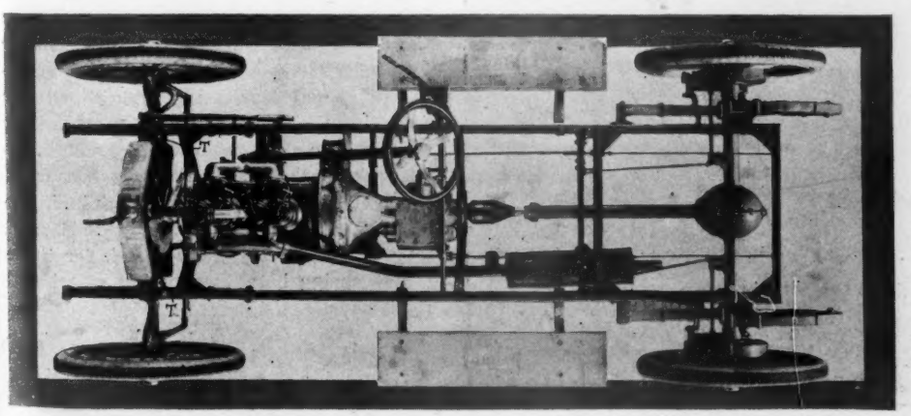


FIG. 4—THE LION 40 CHASSIS AS SEEN FROM ABOVE

MOTOR CAR LITERATURE

"The Motor News" is the title of a new publication issued by the Premier Motor Mfg. Co., Indianapolis. This house organ, which is in newspaper style, will be issued monthly by this concern.

The Otto car, manufactured by the Otto Gas Engine Works, Philadelphia, is described in a conventional manner in a neat and attractive catalog.

"The Regal Plugger" made its initial appearance with its March issue, and is a sixteen-paged yellow booklet published by the Regal Motor Car Co. The opening story is a short history of the formation of the Regal company and its life up to 1910.

"Automobile Anatomy Analyzed" by F. R. Pendelton is a treatise on transmissions, issued by the Cartercar Company.

The Boston Gear Works, Norfolk Downs, Mass., has issued its 1910 catalog, E 3, listing all its standard gears.

The Metzger Motor Car Co. has issued an interesting and informing booklet entitled "The Factory," which is a sixteen-page story telling how the Everitt 30 is made. The book is replete with half-tone illustrations showing the various departments in the factory from the drafting room to the assembling department.

The Chalmers Motor Co., Detroit, is mailing a 70 by 25-inch poster, heralding the news that the Glidden pathfinder is homeward bound. Fourteen illustrations show not only some of the good stretches of road, but also some of the many difficulties encountered and surmounted by this scout car.

Economical and Light Motor Car

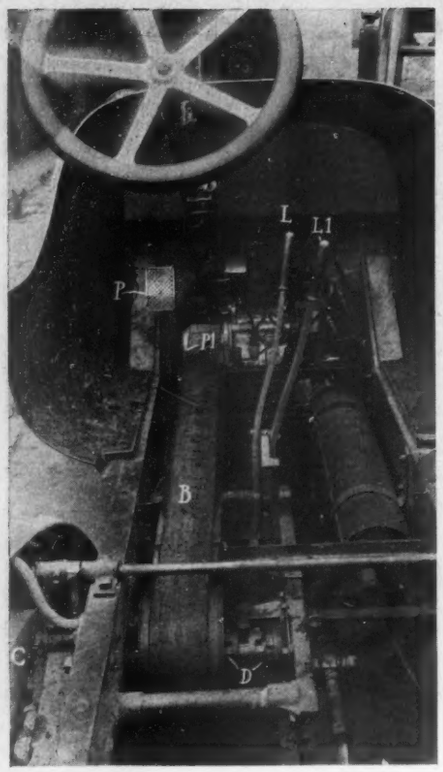


FIG. 1—SHOWING BELT TRANSMISSION

BOTH France and England are keenly interested in the economical motor car. The economical figure for the European is $500, or not more than $600 all complete for the road. For this moderate price the easterner wants something more than a toy; his car must be capable of carrying two persons at a fair clip, it must be simple, reliable, cost little to maintain, and, in externals at any rate, conform to established big-car lines. There have been numerous attempts to supply this difficult demand, and although some of the designs have been good, they have generally failed through indifferent construction, or by inattention to the details.

One of the most promising of these diminutive motor cars intended for the commercial traveler, the doctor, and the man who cannot afford to run a big car, is the Forster, produced by an Englishman resident in France. The machine, which can be marketed complete for a fraction over $500, has an armored wood frame, giving a wheelbase of 84 inches and a tread of 40 inches. It is mounted on wire wheels shod with 28 by 3½-inch tires, has semi-elliptic springs all around, the motor is carried under a bonnet forward, with the gilled tube radiator directly over the front axle; the gasoline tank is on the dash, oil tank under the bonnet. So far as its external appearance is concerned, it is as graceful a vehicle as any large car yet produced.

There is nothing distinctive about the power plant; on the ordinary models it is a single-cylinder, 7-horsepower Aster, and on the semi-racing type a two-cylinder Anzani of 15 horsepower. The motor is placed across the chassis, thus making it necessary to crank from one side; the cranking handle is entirely hidden from view. This disposition of the motor is necessary on account of transmission by belt, B Fig. 1. A broad pulley P1 is carried on the motor shaft and connection made by a long belt B with the countershaft, providing two forward speeds and neutral, with final drive taken by single side chain running in an oil-tight casing C on the left side. There is no clutch, no differential, and no gearbox, as that organ is generally understood.

The driver declutches by a pedal P, but this operation results in sliding forward the whole of the rear axle, and in thus slackening the belt. The necessary movement of the axle is obtained by the use of long spring shackles hanging from a transverse tube projecting from each side of the chassis frame. Naturally the countershaft has to move with the axle, so that the tension of the chain is never varied, and for further facility the change-speed lever L and brake lever L1 are also carried ahead, being mounted on the same frame as the countershaft. As the brake lever operates the rear wheel brakes through cables, it does not become inoperative with the changing position of the axle, the same relative distance always being maintained. Advantage is taken of this movement of the rear axle and countershaft to obtain a very simple brake. Immediately ahead of the driven pulley is a wooden brake block K, Fig. 3, mounted to two transverse frame members. As it is moved forward, still driven by the road wheels and single chain, the pulley is brought in contact with this block and a braking effect obtained in proportion to the pressure exerted on the pedal.

A complete underpan assures the belt working under ideal conditions. A plank placed immediately under its upper length causes it to drop away from the pulleys on declutching and the absolutely oil and dust-proof chain case gives complete protection to all moving parts. As a matter of fact there is less exposure to dust and wet on this cheap little car than on many a $5,000 production. There are only two speeds, obtained by two dog clutches D, on the countershaft, the high gear giving a direct drive through from the motor to the locked countershaft, and the second clutch giving a suitable reduction. Ball bearings are used everywhere except in the motor; that is to say on the four road wheels and in the countershaft, the only moving parts. There is no reverse, this not being required under the French law for a car weighing not more than 770 pounds; but in view of the added inconvenience, the designer is about to fit one, to be worked off the same lever.

Speed only is a question of the motor and the most suitable gearing, the belt being able to take care of any power. On the standard model, with the 7-horsepower 1-cylinder, 30 miles an hour can be maintained on the level. With the 2-cylinder Anzani and a change of the driving sprocket the car can do well over 50 miles an hour on the level. For this fast work the bonnet is made lower than usual, the steering column is more inclined and longer, with a very large wheel, for there is no gearing between steering wheel and road wheels.

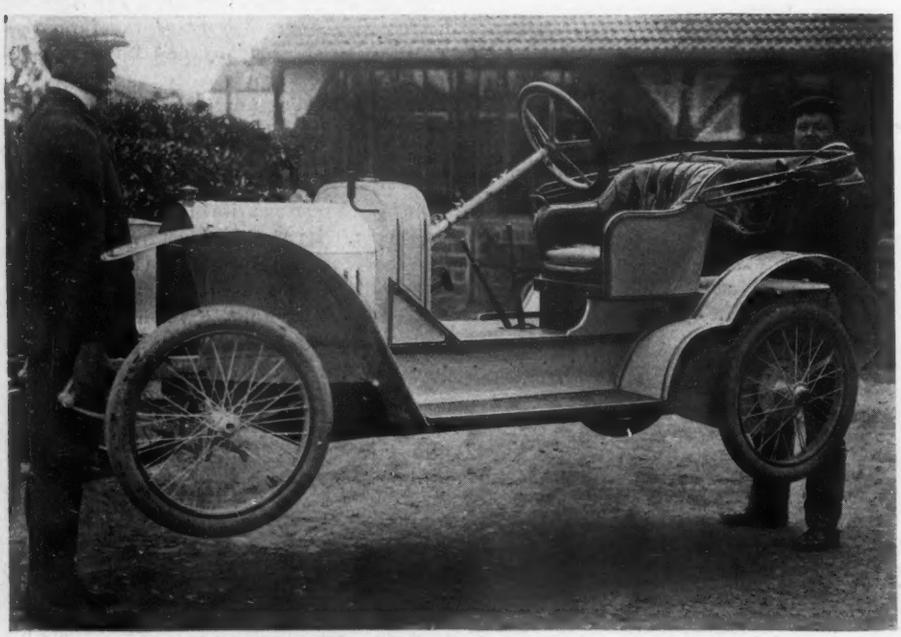


FIG. 2—FORSTER CAR WEIGHS 770 POUNDS—TWO MEN CAN LIFT IT

Made by Englishman in France

A 40-inch tread leaves little room for two seats side by side, and with a view to comfort, Designer Forster has placed the passenger's seat a little to the rear of that occupied by the driver; thus the elbows of the one do not interfere with the other. There is even a third folding seat in the rear, but as this is not intended to be regarded as such by the French fiscal authorities, it is folded away except when wanted for emergency passenger carrying. As a try-out of his car the designer undertook a 3 weeks' trip through Algeria, which might be considered as the European equivalent of a coast to coast run in America. He came back convinced that he had got hold of the right idea for a light, speedy and economical motor car. Although transmission of power by belt is one of the most extensively employed means in use today, this is the first really serious attempt that ever has been made to use it in a motor car. The belt has many advantages, and if properly protected and cared for should give good service.

Two models are produced, one with the steering wheel on the left and levers in the center, for countries where the rule of the road is as in America, and another one with the steering wheel on the right, for use under the English rule of the road.

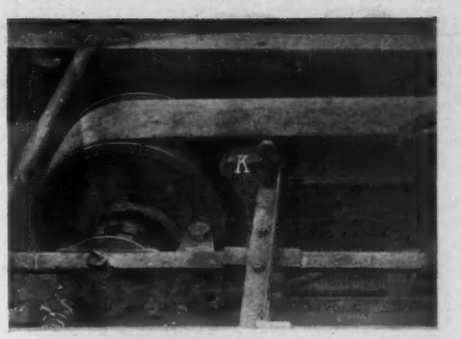
UNCLE SAM'S TRADE TIPS

Vice-Consul-General Carl C. Hansen, of Bangkok, reports as follows concerning the use of motor cars and bicycles in Siam: The imports of motor cars into Siam in the fiscal year 1908-9 numbered seventy-eight, valued at $146,019, against fifty-seven, valued at $96,900 in 1907-8; those from the United States being three cars, at $2,113, against ten cars, valued at $7,362. Of the total imports during the past year, forty-three cars, valued at $73,707, were from the United Kingdom, and fifteen cars, valued at $32,187, from Germany. In addition to the foregoing, motor parts to the value of $27,880 were imported in 1908-9. With the present steady improvements in the roads an increased demand for motor cars is bound to come.

The following information concerning the use of motor cars in Denmark is furnished by Consul-General Wallace C. Bond, of Copenhagen: There were registered in Denmark on September 1, 1909, about 700 motor cars, of which 375 were in Copenhagen, including 138 motor cabs. There were also about 3,500 motor cycles in the country. Practically all the motor cars in Denmark have been imported from the United States, Germany, and the United Kingdom. There is but one motor car factory in Denmark. It produces delivery cars only and on a limited scale. It is safe to say that, with few exceptions, all the first-class European and American manufacturers are represented here. The low-priced car is likely to prove the best seller here as the average income in Denmark, especially among the middle class, is much lower than in the United States. A limited market could doubtless be found for some high-class cars of 50 to 80 horsepower, with more or less luxurious equipment. Motor cars for delivery purposes are gradually replacing the horse-drawn wagon, and the demand will increase for some time. The manufacturer with the right car at the right price will undoubtedly do a profitable business here.

MEXICO HAS MOTOR ROAD

Mexico City, Mexico, May 20—The introduction of the motor car to Mexico is accomplishing more towards the building of good roads than was done since the time of the road-building era that characterized the conquest of this Aztec land centuries ago by Hernando Cortez and his horde of Spanish troops. On Sunday, May 1, President Porfirio Diaz officiated at the formal opening of a new motor road that has just been finished between the town of Iguala, the terminus of the Cuernavaca branch of the National Railways of Mexico and Chilpancingo, capital of the state of Guerrero. The building of this road is a significant step towards the general use of this new means of transportation in the remote mountain districts of Mexico. Prior to the opening of the road a narrow mule trail connected the two towns and the journey was so long and disagreeable that few people cared to undertake it. It is announced that a regular line of motor cars now will be operated between Iguala and Chilpancingo. President Diaz expressed himself as delighted with the splendid character of construction of the road. The scenery along the route is magnificent and impressive. Word has been received here of the establishment of several motor bus lines in the remote parts of far southeastern Mexico, in the states of Chiapas, Tabasco and Campeche. Towns and localities that were formerly 3 or 4 days' travel by muleback from railroad points are now brought within a few hours' ride of each other by motor cars.



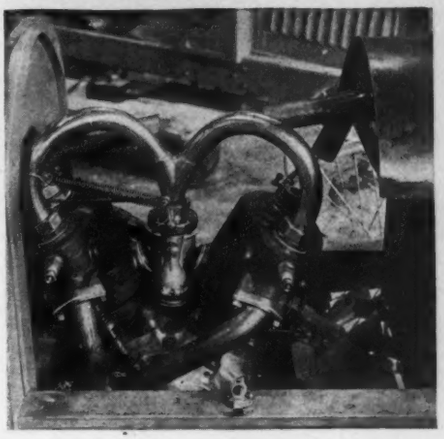


FIG. 3—SHOWING BELT DRIVE SYSTEM
FIG. 4—VIEW OF POWER PLANT

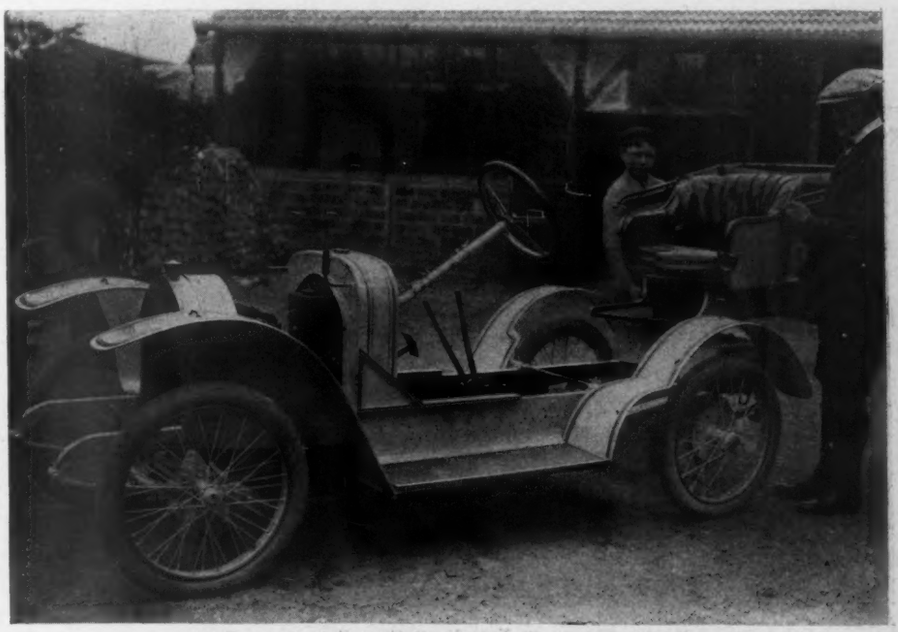


FIG. 5—BODY OF THE FORSTER CAR IS EASILY REMOVED WITHOUT TOOLS

From the Four Winds

NAMES a Good Roads Day—June 9 has been set aside by the Portland rose carnival promoters as good roads day, when a good roads convention will be held at the Commercial Club.

Another Chicago Club—At a meeting held May 17 the Calumet Motor Club, of Chicago, was organized. Charter membership fee is $5 for the first year. The secretary is George Steenberg, 358 East One Hundred and Fifteenth street.

Hill-Climb Postponement—Because the original date of June 11 conflicted with that on which the Wilkes Barre Automobile Club will hold its hill-climb, the Automobile Club of Maryland has postponed the date for its similar event until June 18.

Will Tour to Indianapolis—Fully 100 cars will participate in the run from Louisville to Indianapolis next Sunday to witness the races on Decoration day at the Indianapolis motor speedway. The run will be a pleasure tour and will be conducted under the auspices of the Louisville Automobile Dealers' Association. After spending Monday at the speedway, the tourists will make the return trip to Kentucky May 31.

Sign Day Named—May 28 has been selected as sign day by the Louisville Automobile Club when the motorists will drive into the country and place signboards throughout Jefferson county. Although the entire country in the vicinity of Louisville has been well covered with guide posts it is the intention of the club to mark the highways in such a manner that the tourist not familiar with this part of the state can travel as easily as if he knew the road by heart. Through the assistance of the fiscal court, the entire county has been covered and posts have been erected at all county cross roads, on each side of sharp curves and railroad crossings. In all about 500 signs mark the highways in the vicinity of Louisville.

Race Distance Increased—The grand prize race of the Automobile Club of America, which will be held on the motor parkway on Long Island, October 15, will be over a course of 379.2 miles in length. At a meeting of the Motor Cups Holding Co. it was decided to increase the length of the race from 278.8 miles to 379.2, or thirty laps around the course instead of twenty-two laps.

Club at Reading—Reading, Pa., has organized a new club, to be known as the Berks County Automobile Club. A permanent organization was effected last week with the assistance of J. H. Weeks, president of the Automobile Club of Delaware County. The officers of the new club are: O. M. Weand, president; Leon Thomas, vice-president; C. M. Yetter, secretary; C. D. Moser, treasurer. The board of governors will be made up of the foregoing and A. G. Stauffer, Jonathan Mould, J. George Hintz, Dr. H. K. Maxwell, M. F. Wilkinson and A. S. Blanchard.

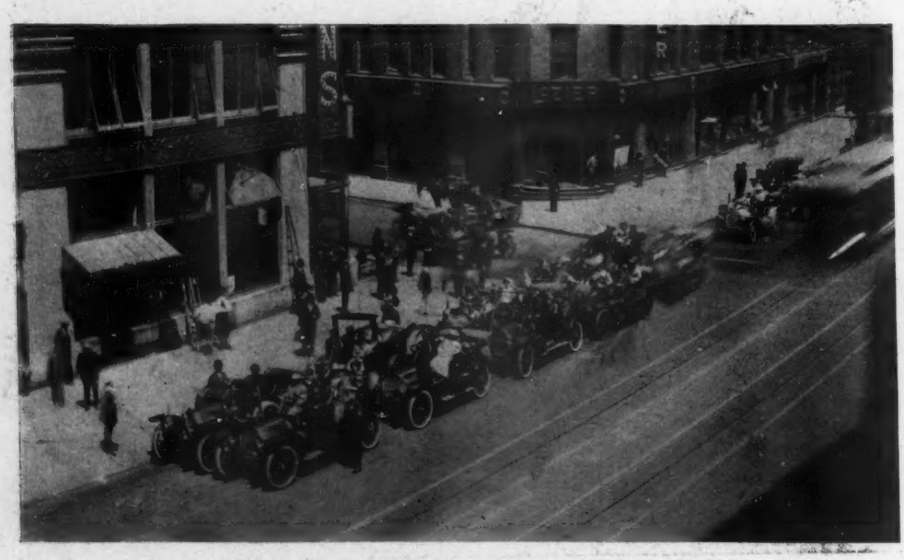
Carolina Endurance Run—The Carolina endurance run will be held on June 7, 8, 9, 10, 11. The course will be as follows: First day—Richmond to Littleton, N. C., by way of Petersburg and Emporia. Second day—Littleton to Raleigh, by way of Warrenton, Henderson and Wake Forest. Third day—Raleigh to Clarkesville by way of Apex, Durham, Chapel Hill and Oxford. Fourth day—Clarkesville to Richmond, via the old Boydston plank road, Boydston and Petersburg. The run is being given by the Times-Dispatch, of Richmond, in the interests of good roads. It is under the rules and auspices of the American Automobile Association, members of which will be present and traverse the route. The cars will be divided into seven price divisions as per A. A. A. rules.

Boston's Show Problem—The Boston Automobile Dealers' Association will have a meeting shortly at which the question will come up whether the next motor show in the Hub will be a licensed one solely. In some papers throughout the country Boston has been included in the list of cities that would hold shows solely for licensed cars, but the matter has not been definitely settled yet.

Insists on Signboards—The Outagamie Automobile Club, organized recently at Appleton, Wis., voted at its last meeting to demand of every township chairman in Outagamie county that the law provides for signboards at all important crossings and on main-traveled highways be enforced. The fifty-odd members of the club will go out among the township chairmen to ask them in a friendly spirit to observe the law.

Practical Club, This—Owners at Beaver Dam, Wis., have organized the Beaver Dam Automobile Club, with twenty-five charter members. The following-named officers were elected: President, J. W. Miller; secretary, C. M. Davison; treasurer, H. E. Lawton. The object of the club as stated in the constitution and by-laws is to push the good roads movement in Dodge county and the vicinity of Beaver Dam. It is proposed that the club purchase King split-log drags and co-operate with the farmers in highway improvement work. The annual membership fee is $3, which will provide a sum sufficient to carry out the purposes. The club intends to affiliate with the Wisconsin State Automobile Association.

Twenty-five in Post Run—Entries in the Washington Post's touring test run to Richmond and return, May 27-31, closed with twenty-five entries, as follows: Division 1A, Hupmobile, Maxwell, Paige-Detroit; division 2A, Ford, Buick, Ford; division 3A, Moon, Regal, Overland, Kline, Staver, Moline, Maxwell; division 4A, two Washingtons, Marion, Buick; division 5A, G. J. G., Oldsmobile, Mora, Columbia, Elmore; division 6A, two Amplex. The official cars are as follows: Pilot, Maxwell; referee's car, Amplex; starter's car, Franklin trek car; checker's car, Warren-Detroit; press cars, Washington and Oldsmobile. A Buick truck will compete in division H. The route of the contest is through historic country. Good roads will be encountered in the Shenandoah valley,



STEARNS AGENTS IN NEW YORK GIVE CRIPPLES A RIDE

but between Staunton and Richmond, passing over Rock Fish Gap, the going is extremely rough. The return trip will also be marked by poor roads for the greater part of the distance.

Ask for Parkway—Motorists are behind a movement to convert at least one street in Louisville into a parkway for the use of motor cars and light teaming. There is no street in the city at the present time devoted to the use of pleasure vehicles exclusively. It is desired by members of the Louisville Automobile Club to have Third avenue, from Broadway to Jacob park, set apart for this purpose.

Demand a Free Road—New Castle county, Del., interests and those of Chester county, Pennsylvania, have begun a concerted effort to have the turnpike connecting Wilmington with West Chester, Pa., made a free road. The Pennsylvania portion has been purchased by the Pennsylvania authorities and is free, and an effort is being made to have the levy court of New Castle county take over the section in Delaware.

Cleveland Schedules Run—The Cleveland Automobile Club's first run of the season will be made to Sagertown, Pa., on Sunday, May 29. Twenty-five cars and over a hundred members and their friends are expected to participate. The start will be made from the Hollenden hotel at 2 o'clock Sunday afternoon and the participants will arrive at Sagertown in time for a 6 o'clock dinner at the inn. It will be a secret-time schedule event.

Wilkes-Barre's Prizes—Real money, to the extent of over $1,500, besides the Hollenback trophy, valued at $1,000, will form the prize list of the coming Giant's Despair hill-climb of the Wilkes-Barre Automobile Club. In the free-for-all there will be two moneys—$300 and $75. The winner of the open will get the entire pot—$200. In the $1,201-$1,600, $1,601-$2,000 and over-$4,000 stock car events and the $3,001-$4,000 runabout and the $3,001-$4,000 six-cylinder stock chassis races the pots will be split $100 to winner and $30 to runner-up, while in the $801-$1,200 and $800-and-under stock car events the winner will get $75 and second car $25. The Hollenback trophy is reserved for $2,001-to-$3,000 cars.

Remember the Cripples—Twenty-five owners of Stearns cars placed their machines at the disposal of Wyckoff, Church & Partridge, of New York, for the fourth annual outing given to the pupils of the Free Industrial School for Crippled Children of West Fifty-seventh street on May 17. The happy children were given badges and silk flags, and taken to the Crescent Athletic Club at Bay Ridge. Here a rest of 2 hours was taken to allow the pupils to romp on the grass and try out the toy aeroplanes which their hosts had provided for them. A luncheon was served them in the club house jointly by the club and Wyckoff, Church & Partridge. Continuing the trip the party, numbering about 120, arrived at Dreamland at 2 p. m., where all the various amusement features were thrown open to them.

STUDEBAKER TRUCK USED AS EMERGENCY AMBULANCE FOR ELEPHANT

Bills Point Breeze Meet—Blanks are out for the first of the Quaker City Motor Club's series of track races, which will be held June 4, at Point Breeze, Philadelphia. The races will be class C events, according to the new A. A. A. rules. The Quakers are also busy on the details of orphans' day, which is scheduled for the following Wednesday, June 8.

Dead Horse Hill Entries—The first entry for the Worcester Automobile Club's fifth annual Dead Horse hill-climb, at Worcester, Mass., on June 4 was received Saturday, it coming from Walter J. Robbins, of Boston, who entered a Babcock electric. Harry S. Houpt, of New York, the manufacturer of the Houpt-Rockwell car, sent five entries to the committee.

Hill-Climb Abandoned—The Cleveland Automobile Club has called off its annual hill-climb. The dealers are surprised and angered at the action of the club and are about to take steps to hold such an event under their own auspices. As the club already had secured the consent of property owners for use of the hill motorists went ahead with their preliminary arrangements.

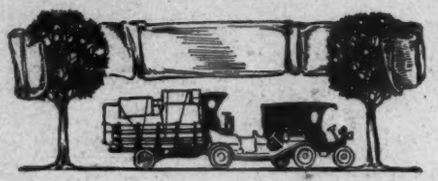
Chauffeurs Open Clubhouse—The Massachusetts Automobile Operators' Association, comprising more than 500 drivers of private cars, formally opened its clubhouse on Dartmouth street, Boston, last week. There were about 250 members present and the guests were Colonel William D. Sohier, of the highway commission, and Judge J. Albert Brackett. Colonel Sohier spoke to the members for nearly an hour on the elimination of reckless driving and joy-riding during which he impressed the members that if they took a hand in reporting those guilty of the offenses there would be a decided check to the number of accidents. The organization has pledged itself to discipline any of its members who do not pay due regard to the laws.

Club at Lancaster—The Lancaster Motor Club, of Lancaster, Ohio, has been organized with the following officers: President, J. J. Keating; vice-president, Lester Feebert; secretary, L. P. Berkenbach; treasurer, F. M. Stein.

Two New Contest Managers—Paul Bruske has resigned as sporting editor of the Detroit Times to become contest manager of the E-M-F company. Mortimer Reeves has been appointed contest manager of the United States Motor Co.

An Impromptu Ambulance—All records for heavy-weight ambulance patients were shattered when a Studebaker electric truck was converted into an impromptu ambulance to carry Tillie to the hospital. Tillie is the 4-ton elephant belonging to the Robinson brothers circus, and while helping to push a heavily-loaded circus wagon out of the deep mud at Pickwick, O., had the misfortune to strain a tendon in her left front leg. The Studebaker company sent an electric truck to the show grounds, and with its assistance Tillie soon was receiving the necessary surgical attention at the hands of a South Bend veterinary.

Motorists Win a Point—Governor Crothers, of Maryland, has remitted the fines imposed on the five Baltimore members of the Automobile Club of Maryland, who were arrested at Berwyn, Prince Georges county, Maryland, several weeks ago. This was the case in which the members claimed that the new Swann motor vehicle law was in effect at the time and under which they were permitted to make from 18 to 25 miles an hour. The Prince Georges county authorities claimed that the old law was in effect which did not permit a speed exceeding 12 miles an hour. On levying the fines, Justice Richard E. Beall, Jr., stated that he imposed the fines under the provisions of the old law.



In the Realm of the

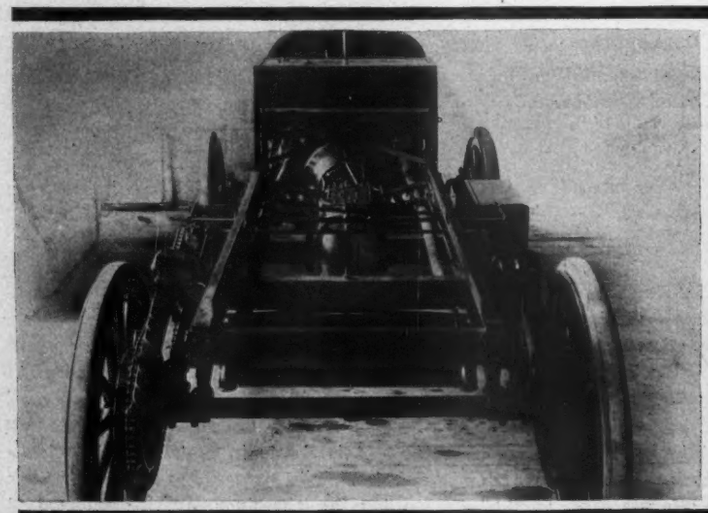
ONE OF THE LIGHT TRUCKS MADE BY UNITED STATES MOTOR TRUCK CO.

United States Motor Truck Co.'s Line

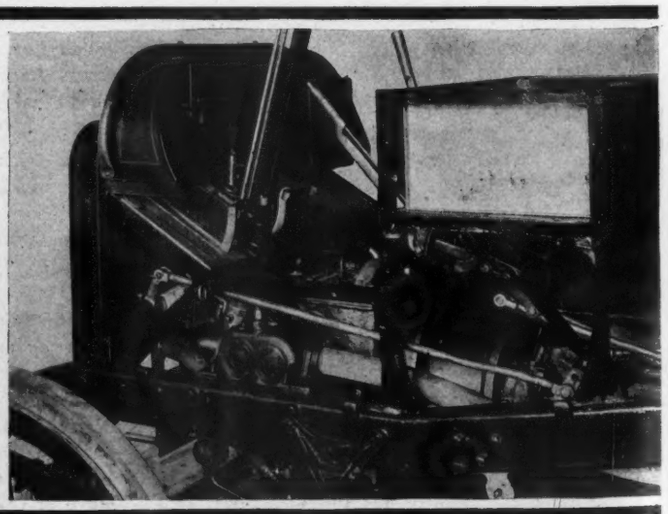
THE United States Motor Truck Co., Cincinnati, O., is marketing a line of trucks in which a common chassis is used and which may be fitted with express, delivery, open delivery, or heavy truck bodies. One model is built for a 1,500 to 2,000-pound load, and the other for 1-ton and 1½-ton work. On all of these trucks the rear wheels are of larger diameter than the front. These delivery wagons, or light trucks, have a somewhat novel chassis arrangement consisting of a two-cylinder opposed motor mounted transversely in front and located directly beneath the footboards. Incorporated in the flywheel is a cone clutch and amidship a selective type of sliding-clutch gearset is used, in which the gears always are in mesh. In the rear end of the gearset is incorporated the balance gear located on the jackshaft. This jackshaft carries sprockets for chain transmission to the rear road wheels.

The motor employed has 5¼-inch bore and 4½-inch stroke. Each cylinder is an integral casting, and the usual care in construction is used. The pistons with their rings are ground and lapped. The crankshaft is 1⅞ inch in diameter and connecting rods are manganese bronze. In lubricating a sub-base is provided for the motor, it having 1-gallon oil capacity. From this through a gear oil pump the oil is directed through a sight feed on the dash and thence to the motor parts. The ignition system is jump spark. On the left side of the dash is a non-vibrating coil with switch attached and on the right side is a weatherproof battery box with six dry cells. Between the two is mounted the Atwater Kent uni-sparker driven by shaft with universal joints from the camshaft. By this arrangement all of the ignition parts are accessibly mounted on the dash of the car, and the only wires leaving the dash are the two high-tension cables to the plugs. From 2,000 to 3,000 miles is expected from an ignition outfit of this nature. The aluminum gearbox is supported at its front end to a cradle extending between the frame side members and at the rear is supported by the jackshaft housing. These housings are bracketed to the side members by spherical bearing supports, the bearing portion being formed to the same radius as a 5-inch ball. Both the bracket and cap are machined concave to form a snug fit around the ball without danger of binding. Both halves of the jackshaft are nickel steel bars with the inner ends squared at the end of the differential gears and the outer ends tapered to take the sprocket hub which is attached by Woodruff keys and nut. All gears and clutch parts in the gearset are hardened and ground and New Departure double ball bearings are fitted.

The rear axle is a nickel steel bar 2½ inches in diameter, and all springs and brake-supporting parts are steel castings clamped to the axle. The front axle is a heavy construction fitted with large ball bearings at the top of the steering knuckle which carry the car weight and they are intended to make steering easy.

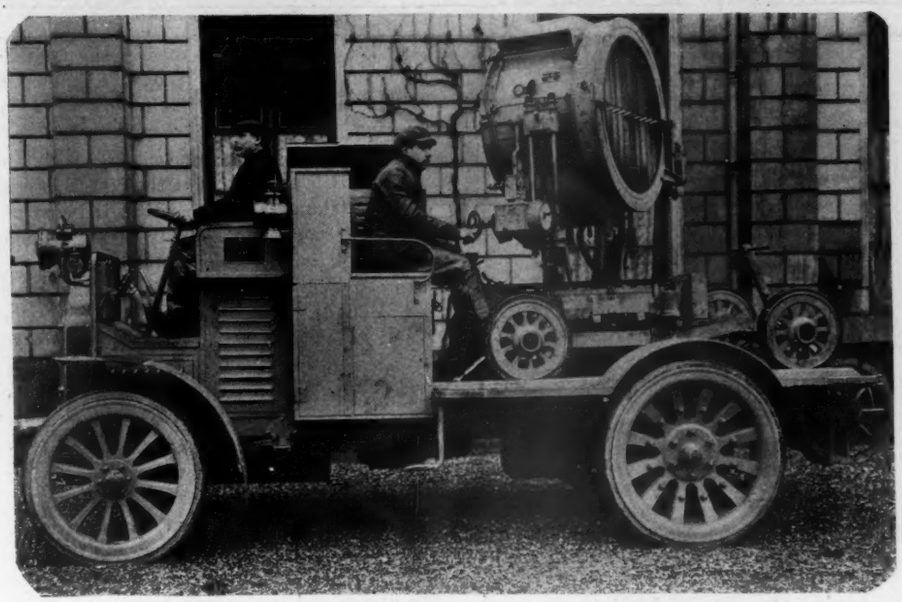


REAR VIEW OF UNITED STATES MOTOR TRUCK CHASSIS



VIEW SHOWING LOCATION OF UNITED STATES TRUCK ENGINE

Commercial Car

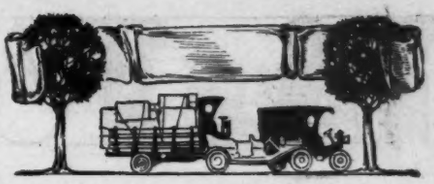


PORTABLE SEARCHLIGHT AS DESIGNED FOR FRENCH MILITARY USE

French Make A Motor Searchlight

THE horse has had to give way to the motor in another branch of army work. Up to the present portable searchlights have been carried on horse-drawn vehicles, the generating plant, consisting of a gasoline motor and dynamo forming one unit, and the searchlight forming another and independent outfit. To be put into service the two units had to be brought together, connected up with, obviously, a certain loss of time, and never could send an investigating flash of light across the country when in movement on the highway. Even with six horses for each vehicle the outfit was not rapid enough.

In future French troops will have the aid of a motor-driven searchlight, of a model produced by the de Dion-Bouton company and the Breguet concern, and officially adopted after searching tests by staff officers. There is now no possibility of a failure owing to one of the vehicles getting astray, for the electricity-producing plant and the projector form one unit and are self-propelled. The motor car portion of the apparatus consists of an 18-horsepower de Dion chassis suitably strengthened for the work it will have to perform, and fitted with a four-cylinder motor carried under the driver's feet.



The chassis is mounted on single solid rubber tires in front and twin solids in the rear. The gearset gives three speeds forward and reverse, with a maximum of 20 miles an hour under full load on a level high road, and an ability to climb grades of 15 per cent. Gasoline consumption works out at the rate of 10 miles to the gallon. Drive is taken in the usual de Dion way through plate clutch, three-speed gearbox and transverse cardans to the road wheels. In addition to driving the rear wheels the motor also drives the dynamo mounted on the mainshaft, either with the vehicle in motion or in a stationary condition. The entire electric outfit is immediately to the rear of the seat.

Three-quarters of the body area to the rear of the driver is left free to receive the searchlight, a Breguet instrument, the reflector of which has a diameter of 36 inches and flashes a light equal to 7,000 Carcel lamps. The projector is carried on two spring-supported forks attached to a circular track, thus allowing for free movement in every direction. The carriage is mounted on a four-wheeled bogey, the front wheels of which are pivotable and the whole specially designed to be received on the platform of the truck. When not in use the projector is lowered until it is well within the carriage, thus keeping the center of gravity low. If desired to be used when on the road, it can be quickly raised by hand and the glare of the lamp flashed on any object even with the vehicle in motion.

When the motor car has been brought to a stop the 18-horsepower motor is used exclusively for driving the dynamo.

BATTERY OF FRENCH PORTABLE SEARCHLIGHTS AND MOTOR TRUCKS THAT CARRY THEM

The Motor Car Repair Shop

Hints for the Amateur

A GLASS-CUTTER is a tool which rarely is included in the equipment of an ordinary repair shop, but there are times when a means of cutting glass often comes in handy. For instance, a few days ago a repairman in a local repair shop tried to make a receptacle for holding acid used in soldering. After filing rings around several bottles and then trying to crack them evenly, he gave it up as a bad job. It then was suggested that he wrap a piece of string around the bottle B a few times, as at S in Fig. 1, fold the ends in so that it would stay in place, saturate the string with gasoline, ignite it and let it burn until all the gasoline was consumed and the flame disappeared. Then he was told to dip the bottle into a pail of cold water, as shown at B2 in the same illustration. The experiment was tried, and when the bottle was dipped into the water it broke off with a clean sharp break just slightly above where the string had been wound around it. The bottle was carefully held against an emery wheel and the sharp edges ground off, making a very satisfactory receptacle for the purpose above mentioned. This same idea might be advantageously used in cutting gauge glasses, such as are often found in the oiling systems on the dash of a motor car. A string saturated with gasoline or kerosene should be wrapped around the gauge-glass G, as shown, when the portion B1 above the string is to be cut off.

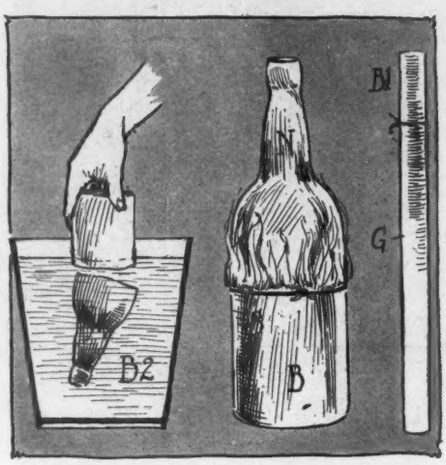


FIG. 1—A NOVEL GLASS-CUTTING METHOD

Motor Wouldn't Budge

It is not an uncommon occurrence for an amateur or a young repairman to have several parts of a mechanism left over occasionally. Many a carbureter has been assembled without the float; but one of the most humorous errors was made a few days ago by a repairman who boasts an expert's knowledge and experience. A motorist brought his car into the garage and turned it over to the repairman with instructions that the carbureter be taken off and examined, stating that it apparently would choke up at times and the motor would stop. Assuming, perhaps, that the feed-pipe was clogged up, it was removed and inspected. Being perfectly clear, however, the curbureter then was removed and a large splint of wood was found in the mixing-chamber. The splint sometime previously had been jammed between the edge of the hot air inlet of the carbureter and the exhaust pipes, to keep them from rattling; and having worked loose, was sucked up into the carbereter, where it took up a position occasionally that caused trouble. Having removed the splint, the carbureter was properly reassembled and replaced upon the motor, but in shoving the supply pipe into place the workman neglected to bear in mind that the fan flywheel was a revolving feature of the motor, and led the pipe between two of its spokes. The next day when the owner called for his car he could not turn it over, it would not budge. An examination disclosed the trouble.

Worn Clutch Bearings

It is by no means an uncommon occurrence to see a motorist fumble around with his gear-shifting lever for 2 or 3 seconds before he gets the gears into mesh, then see the car make a few jerks or jumps forward. The noise of the grating gears is extremely painful to an experienced motorist, who realizes the damage that may be done, and how readily the trouble may be eliminated by proper adjustment of the clutch or the refitting of a clutch bushing. In Fig. 2 a common cause of clutch trouble is illustrated. The clutch bushing B is so worn that the clutch hangs down on the spindle S, so that it bears at the lower portion of the flywheel F when the clutch is disengaged. Thus it drags, keeps on revolving, and makes gear-changing difficult. The bushing shown in the illustration was worn down unusually fast on account of a lack of lubrication, the grease cup having been lost from the hole H, and the loss either ignored or overlooked by the driver. This is a bearing on a car which often is overlooked owing to the fact that it is generally quite inaccessible. It is important, however, that this bearing should receive regular attention, for there is nothing more annoying to the driver and the occupants of a car than the grating of gears when a change is made, and the jerky grabbing of the clutch when it takes hold. The remedy for trouble of this kind is to remove the clutch and fit a new clutch bushing B.

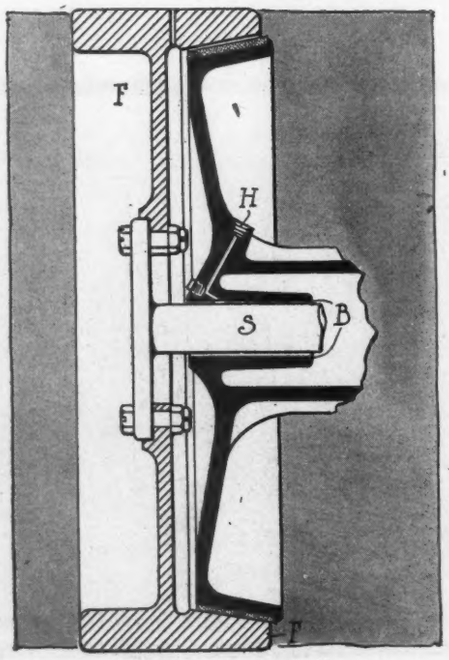


FIG. 2—A WORN CLUTCH BUSHING

Slipping Disk Clutch

It occasionally happens that a car is brought into the repair shop with a complaint that the clutch slips in starting, takes hold too slowly, etc. When a clutch of the multiple-disk type begins to slip the trouble generally is due to maladjustment, too much oil, or an oil of too heavy a grade. To treat a slipping clutch of this kind one should turn the flywheel over until one of the oil plugs can be removed; pour in about a pint of kerosene oil; replace the plug, then have some one turn the engine over slowly while the clutch is worked in and out for a few minutes. In this way the kerosene comes in contact with all of the internal mechanism of the clutch, and letting the clutch in and out forces the kerosene in and out between the plates or disks, cleaning away the thick and sticky oil. Some repairmen endeavor to clean the clutch in the above manner, but instead of turning the motor over slowly by hand while the clutch is being worked in and out, they do it while the motor is running, ignoring the fact that as the clutch revolves at speed the oil is held to the circumference of the case, and therefore does not flow through the plates or flush through them as it should. This method, however, will meet with fair success if a sufficient quantity of kerosene is used. After the clutch has been thoroughly flushed, drain off the oil and kerosene, flush out if necessary with a few gunfuls of gasoline, then refill with the required amount of a mixture of kerosene and cylinder oil.

Current Motor Car Patents

Motor Car Turn-Table—No. 957,536, dated May 10; to Milo A. Baker, Los Angeles, Cal.—This patent covers a sort of a hydraulic jack mounted on castors which may be placed under the axle of a car and raise it by means of compressed air from a pump used in connection with it. This device should be particularly useful in garages which are cramped for space and where a turn-table is less practical. As shown in Fig. 1, it is comprised of a truck T mounted on castors C, a yoke Y adapted to fit under the axle, which is mounted on a piston P; and a cylinder L of the elevating mechanism mounted in the truck. On opening the valve V, and operating the pump M, air is forced through the connection N into the jacket J, forcing the fluid therein through the openings O into the cylinder L, thereby raising the piston P and the axle of the car from the floor.

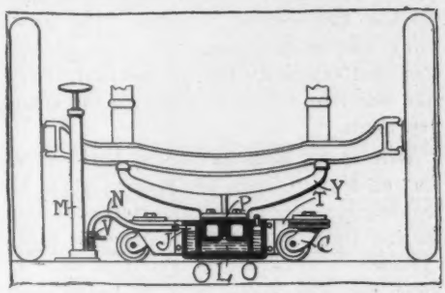


FIG. 1—HYDRAULIC JACK ON ROLLERS

Combined Magneto and Battery Switch—No. 957,270, dated May 10; to Albert J. Studnicka and Charles W. Campbell, Minneapolis, Minn.—This patent relates to a switch interposed between the secondary circuits of a combined magneto and battery ignition system so that two independent sources of current may be employed with a single set of spark plugs. A wiring diagram of the system showing the arrangement of the various parts thereof and the terminals thereon is illustrated in Fig. 4. The common switch S the face of which is shown at A with its operating lever L, has a multiplicity of fixed and movable contacts, by means of which either the secondary wires D from the coil O or the high-tension wires D1 from the magneto M may be connected to the wires W leading to the spark plugs. Wire G is a ground wire for the battery system, G1 is a ground wire for the magneto system and B is the battery. The contacts on switch S are so arranged that with the lever in one position they will close the secondary magneto circuits to the spark plugs and break the primary magneto circuit and the primary and secondary sparking coil circuits, and in another position will close the primary and secondary sparking coil circuits and the primary magneto circuit and break the secondary magneto circuit.

New Two-Cycle Design—No. 957,657, dated May 10; to Paul Daniel, New York, N. Y.—The motor covered by this patent is not greatly unlike the conventional type of three-port, two-cycle motors now in use. It differs, however, in that instead of compressing the fuel mixture in the crank chamber, the crank chamber is simply used as an air compressor. As shown in Fig. 2, when the motor is in operation air enters the crank chamber C through the automatic inlet valve A as the piston P ascends. As the piston P descends the air in the crankcase is compressed until the piston uncovers the exhaust port X, when the pressure in the cylinder above the piston approaches atmospheric pressure; then the compressed air in the crankcase C and the conduit T automatically opens the valve V, providing the valve VI, which is controlled by the operator, is already open and the gas flows into the cylinder. As the piston rises it again compresses the charge until it reaches the top center, where the explosion occurs and the cycle is repeated. As the compressed air passes through the channel H it draws fuel from the spray nozzle N of the carbureter B.

New Type of Carbureter—No. 957,731, dated May 10; to Frances W. Brady, New York, N. Y.—The carbureter to which this patent relates differs from the ordinary type of carbureters in many respects, as may be seen from a glance at Fig. 3. It comprises a carbureting chamber C, a varporizing member V rotably mounted therein, an air inlet port A above the vaporizing member, a vapor outlet port O below the vaporizing member and a baffle disk B having a concave upper surface with a central passage substantially dividing the chamber between the vaporizing member and vapor outlet port. In operation a means is provided for rotating the shaft S, to which the vaporizing member V is attached, and as this rotates a stream of oil is fed upon it from the nozzle N. As the air enters at A and passes over the upper surface of the revolving member V with the thin film of oil spread upon it, the air becomes saturated with the fuel and passes on to the motor through the outlet O. A drip cup U is arranged below the baffle plate to catch any oil that drips therefrom, and a drainage pipe P leads any superfluous oil from the drip cup to the exterior of the carbureting chamber.

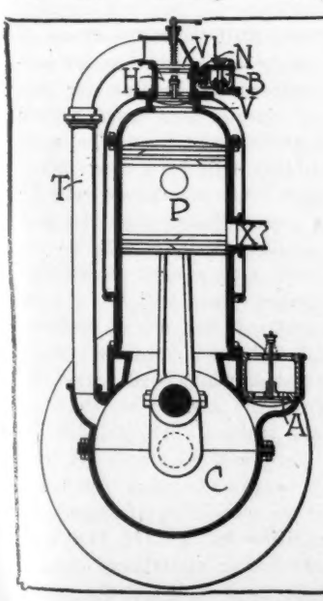


FIG. 2—NEW TWO-CYCLE DESIGN

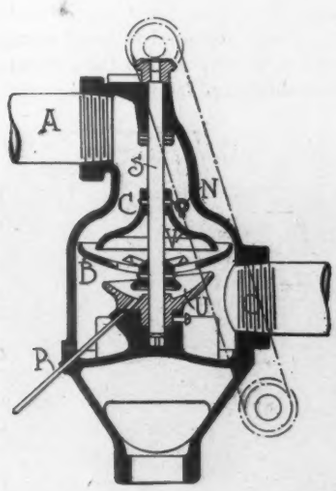


FIG. 3—NEW TYPE OF CARBURETER

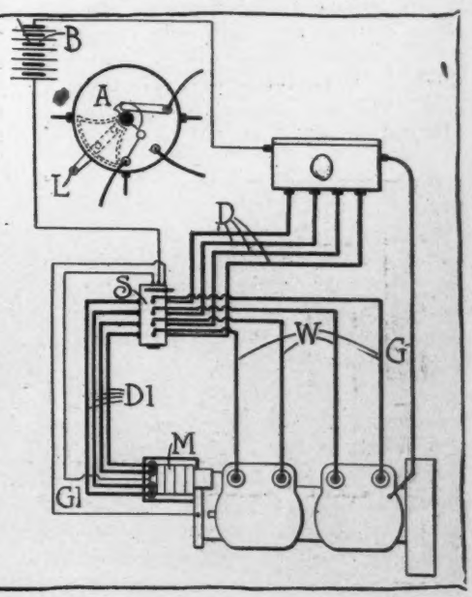


FIG. 4—WIRING NEW IGNITION SWITCH

Among the Makers

In Its New Factory—The A. B. C. Casting Co., of Cleveland, has opened its new factory, in which is installed the latest equipment for the production of castings.

Hulett Changes—J. B. Hulett has resigned as sales manager for the Robertson Motor Car Co., of Minneapolis, to become western sales manager for the Owen Motor Car Co., of Detroit.

Federal Branch in Atlanta—The Federal Rubber Co. has opened a branch in Atlanta, Ga., at 170 Peachtree street, where it will carry a full and complete line of tires and tubes. This branch will be in charge of G. M. Seewald.

Buys Land for Factory—The Minneapolis Motor and Truck Co., having nearly completed the experimental stages of its trucks, has bought a tract of land at Ninth street and Ninth avenue southeast, and will erect a large factory.

Making Tops at Portland—The Ramsey-Alton Mfg. Co., of Portland, Mich., which heretofore has produced morris chairs, has decided to manufacture tops, and plans are under way for the equipment of a portion of the plant with the special machinery required for this business. J. Hayes, of Detroit, has invested $10,000 in the new enterprise, which is expected to give employment to about fifty men.

Cole Plant Increased—The Cole Motor Car Co., of Indianapolis, has found it necessary to increase the size of its factory, and has taken over the building formerly occupied by the Reliable Auto Exchange, which adjoins its factory on East Washington street. The annex has three floors, 50 by 2,000 feet, and gives the Cole about 30,000 square feet additional space and will be used exclusively for painting and final finish of the Cole.

Factory for Gaylord—Organization of the Gaylord Motor Car Co. has been perfected in Gaylord, Mich., and the company has engaged Guy Hamilton, of Detroit, to act as manager on contract. Mr. Hamilton is now making arrangements for the purchase of machinery and other equipment for the factory, which will be located in Gaylord. Construction work will begin at once. The new company is capitalized at $100,000, of which $50,000 is paid in, in cash. The entire issue of stock was subscribed for within 48 hours. The company will manufacture new type of car, designed especially for the use of farmers and one that will take ready to the country roads.

Will Make Engines—Beers Brothers & Co., of Marion, Ind., are making plans to manufacture engines for the motor car and marine trade and have produced a four-cylinder, 5 by 5 motor which is said to have run 410 miles in a non-stop test recently without an adjustment.

General Motors Investment—Representatives of the General Motors Co. are responsible for a statement made in Saginaw, Mich., that the company intends to expend about $800,000 in enlarging its two plants in that city. The plants are those of the Marquette Motor Works and the Jackson-Church-Wilcox Co. Saginaw citizens have subscribed for $150,000 stock in the General Motors Co.

Will Make Hamiltonian—A four-cylinder gasoline car to be known as the Hamiltonian will be manufactured at Greensburg, O., by the newly organized Hamilton Motor Car Co. The designer of the car is Harry W. Hamilton, who is interested in the company, together with C. P. Corbett, Walter W. Bonner, H. T. Woodfill and David A. Myers. The company has been incorporated with an authorized capitalization of $50,000.

Regal's Canadian Plant—The Regal Motor Car Co., of Detroit, is ready to start work on its Canadian branch, in Windsor, Ont., as soon as the taxpayers of the municipality vote on the question of selling the company the site that has been selected, which happens to be owned by the city. A special election for this purpose has been called, and there is little question but that the proposition will go through. The property comprises 3½ acres. The Essex Terminal railroad stands ready to run a spur track into the property to provide shipping facilities, the estimated cost of this undertaking being about $15,000. The initial plans call for a main building 300 by 60 feet, to cost $25,000. The plant will have a capacity of ten cars a day at the start and will employ 150 men. The Regal's Canadian branch now located in Walkerville, will be abandoned if the present deal goes through.

Mitchell Activity—The designers of the Mitchell-Lewis Motor Co. have completed plans and specifications for the 1911 Mitchell line and work will begin in a few days. The company has advance orders for 2,000 more cars before the present season is completed and will be required to operate at full capacity all summer. There will be no shutdown as usual in mid-summer, and it may be necessary to operate a night shift.

Bennett Joins Overland—George W. Bennett has resigned as eastern manager of the White Co. to become general sales and advertising manager for the Willys-Overland Co., of Toledo, to handle its entire output. His resignation is to take effect on the last of the month, or as soon thereafter as the White company can appoint his successor. Then Mr. Bennett will take charge at Toledo and Indianapolis.

Will Stay in Indianapolis—The American Motor Car Co. has ended negotiations for moving its plant to Lafayette, and will remain in Indianapolis, for the time being at least. The company asked for a plant valued at $125,000 and working capital of $100,000, which Lafayette business men have declined to give, suggesting that a cheaper plant be erected in order to obtain the working capital desired. As an alternative they offered to give the plant requested and advance $60,000 working capital.

Rambler Plant Still Growing—Plans of Thomas B. Jeffery & Co. provide for several large additions to the Rambler factory. Ground already has been broken for three of these additions. The most important building will be a new power plant, by which 1,500 horsepower will be added to the present boiler capacity, and the present engine capacity will be increased by 1,000 horsepower. A feature of the new power plant will be a complete equipment of automatic stokers, these to be fed by an automatic coal-handling apparatus, which will carry the coal direct from the cars in which it is received to the stokers. An addition of 100 by 300 feet will be made to the machine shop to provide room for more machinery for the machining of important parts. An addition 257 by 150 feet will be made to the motor assembling department to provide more room for the accurate fitting and assembling of parts. A

P. C. Peterson Auto Co., Pope-Hartford Agent at Davenport, Iowa

and Dealers

third building, 257 by 200 feet, will be added to the north end of the factory to provide for more room for the inspection of finished cars. Every part of the Rambler is now made and finished in this factory, including the bodies and the upholstering. During the summer a fourth addition will be made to the drop forge shop.

Stafford Buys a Plant—The Stafford Motor Co., of Kansas City, Mo., has purchased the old plant of the Kansas City Automobile Mfg. Co. on the Blue river. The property comprises a half-dozen buildings, one of extensive proportions, and a 3-acre tract. As soon as the company's machinery is moved to the new quarters the factory will be in a position to build 500 cars a year.

Cartercar will Enlarge—The Cartercar company will enlarge its facilities at Pontiac, Mich. The company has purchased a 2-acre tract. A one-story machine shop containing 30,000 feet of floor space will be erected. Another addition will be three stories high and will contain 60,000 feet of floor space. The building will be devoted to storage and office purposes. It is planned to turn out 4,000 cars next year. About 500 more men will be employed.

After an Overland Plant—As the result of a visit from Mayor W. D. Davis and other prominent citizens of Fort Worth, Texas, the Overland company may decide to build a factory in Texas. The visitors were in Indianapolis recently and urged that the motor car company place a factory in the Lone Star state. The company contemplates building an assembling plant some place in Texas, and may also build a plant for making bodies. This, however, will not interfere in any way with the Indianapolis or Toledo plants of the company.

New Orleans' Garage Plans—A coöperative garage in the heart of the city of New Orleans is the plan of the Motor League of Louisiana, and the plan is so well afoot that a probable site in Elks' place has been selected. New Orleans is poorly provided with garages. Several dealers are willing to store machines, and there are a few garages in outlying sections, but their combined capacity is small. The need is for a centrally located garage for the use of the man who would like to drive his machine down town in the morning and back home in the evening. Twenty-five cents per day for transient storage is given as the tentative figure; this price naturally does not include washing and polishing. For $30 per month it is believed the league can afford to store, wash and polish a big limousine, with rates for other cars in accordance. It is suggested that every gasoline tank be filled when a car is brought in, no matter if partially full, the profits to aid in defraying expenses. Present rates average $25 per month for a touring car, $20 for a baby tonneau, and $15 for a runabout.

Secures Storage Room—The Mitchell-Lewis Motor Co., of Racine, Wis., has started construction work on a large warehouse, of steel, concrete and brick. The building will be two stories high and will be used to store finished cars awaiting shipment.

Tire Company for Wisconsin—The Ferromatic Tire Co., of Kansas City, Mo., has established its principal headquarters at Manitowoc, Wis. For the present the headquarters are located at the office of the Aluminum Foundry Co. At this time the tire is being manufactured at Chicago.

Ready for Work—The Briggs & Stratton Co., of Milwaukee, has completed and now is operating its new plant. The building is of concrete construction and is equipped with modern machinery and tools for the manufacture of the B. & S. igniter. In addition to the equipment of special tools and machinery for manufacture of the mechanical parts, a complete vacuum impregnating apparatus for the special treatment of spark coils has been installed.

Buys Houston Plant—Announcement has been made of the purchase by Dallas men of the Southern Motor Car Co. factory at Houston, Texas, and also that at an early date the factory will be removed from Houston to Dallas. After the removal the plant will be considerably enlarged and the output of cars will be greatly increased. The purchasers paid $25,000 for the plant, and the company has agreed to put in an additional $35,000, making a total capitalization of $60,000, and it is proposed to turn out more than 1,000 cars in 1911. The following constitute the board of directors and officers: W. G. Brown, president; G. Fred Thompson, vice-president; R. V. Rogers, J. W. Crotty, A. S. Stemmons and N. M. Kittrell, Jr., members of the board, and E. M. Pavey, of Houston, second vice-president and superintendent.

Wright Company Organizes—The Wright Motor Car Co. has been organized at Carlisle, Pa., and will manufacture motor cars and motor cycles. A factory will be built later.

Counselman Promoted—On June 1 Lee Counselman will assume the title of general manager of the Chalmers Motor Co., which Mr. Chalmers himself has held up to this time. Mr. Counselman has been vice-president and assistant general manager for some time, having been promoted from the position of sales manager. Mr. Counselman has been associated with Mr. Chalmers for 10 years in various capacities.

Another Badger Enterprise—The Case Co., incorporated in Wisconsin, with a capital stock of $100,000, as subsidiary to the J. I. Case Threshing Machine Co., Racine, Wis., states in its aims and objects that it intends to manufacture threshing machines, engines, separators, farm machinery of all kinds, implements, wagons, trucks, carriages, motor cars, and all kinds of vehicles. The incorporators are Frank K. Bull, Richard Robinson, F. Lee Norton and William F. Sawyer, all officials of the J. I. Case company. The headquarters of the new company will be at Racine, Wis.

Doubling E-M-F Capacity—Workmen have descended upon what was, until a few days ago, a populous residence section of Detroit at the corner of Piquette avenue and Brush street and, armed with pick-axes and crowbars, are rapidly clearing the way for additions to the main plant of the E-M-F company. Stately old brick residences, which have sheltered some of Detroit's best known citizens, are disappearing one by one. On Piquette avenue alone there are twelve such residences, all in a row. Before the month is over all of them will have disappeared. While the details are not worked out, it is known that the building will be of brick construction and four stories high, conforming in general appearance to the present structure. It will more than double the capacity of the plant, and several new departments will be added.

NEW GARAGE OF NEBRASKA BUICK AUTOMOBILE CO. AT OMAHA, NEB.

Brief Business

FORT ATKINSON, WIS.—J. C. Hebbe has opened a garage and repair shop at 301 South Main street.

Parsons, Kan.—E. T. Elder and E. W. Struve have bought the interests in the Parsons Motor Co. formerly controlled by Kimball & Delay.

Buffalo, N. Y.—Edward T. Smith, formerly in the sales department of the Iroquois Rubber Co., of Buffalo, has been appointed manager of the company.

Delavan, Wis.—Charles J. Quinn, liveryman, is building a public garage adjoining his livery stables. It will be 45 by 65 feet in dimensions, one story high, of solid brick.

Philadelphia, Pa.—The Haynes Auto Co., now located at 211 North Broad street, will move to 326 North Broad street. The new building is double the size of the present quarters.

Coshocton, O.—Carl Mielcke and Fred Kunz, of Pittsburg, have purchased through the Baker-Herbig-Royer company the garage formerly operated by Siegrist & Sons at the corner of Fifth and Walnut streets.

Tampa, Fla.—The Florida Automobile and Gas Engine Co. is erecting a new garage at Florida avenue and Jackson street 70 by 90, of pressed brick; two stories in height, to cost $16,000, including a repair shop with complete equipment.

Milwaukee, Wis.—The Wisconsin Automobile Radiator Co. has been incorporated by Milwaukee capital with a stock of $50,000. A charter has been granted by the secretary of state. The incorporators are: H. Gerhard Aussen, S. S. Land and Arthur Zancing.

Uniontown, Pa.—Harry Mitchell and others connected with the Tri-State Garage Co., have bought from Frank Lewellyn his garage at 76 East Fayette street in that city and will use it as an addition to their own plant. Mr. Lewellyn had the agency for the E-M-F.

Buffalo, N. Y.—The Michelin company has discontinued the retail department of its tire agency in Buffalo and attention will now be devoted exclusively to the wholesale trade. The retail business has been placed in the hands of the several local concerns.

Salt Lake City, Utah.—J. C. Lynch is building a new hotel-garage on the northwest corner of Second South and Second East streets, 90 by 98 feet, to cost about $100,000. The entire lower floor is to be occupied by the Studebaker Automobile Co. under the management of Mr. Quigley.

Boston, Mass.—The Michelin tire branch on Boylston street, Boston, within a few doors of the Back Bay police station, was burglarized a few mornings ago between 5 and 7 o'clock. Manager L. H. Fiske took an account of stock and found eighteen tires and three inner tubes gone, worth $925. As they weighed about 400 pounds, it is supposed that a motor car was used to carry them away.

New York—The New York branch of the Chase Motor Truck Co. has recently doubled its floor space.

Ashland, Wis.—D. D. Cummings, of Minneapolis, Minn., has opened a public garage in the Bailey building, at Ashland.

Chicago—The Michelin Tire Co., 1344 Michigan avenue, has outgrown its present headquarters, and has removed to 1449 Michigan avenue.

Fond du Lac, Wis.—The Star Automobile Co. will lease the $10,000 garage which is being erected at Fond du Lac by R. H. Lee and L. J. Remington.

Bakersfield, Cal.—The Owners' Garage Co. has leased the property at F and Nineteenth streets for 10 years and will build a 30-foot addition for its garage.

New York—John Ryan, formerly of the Factory Sales Corporation, selling Schebler carbureters, has been engaged by A. R. Mosler & Co. to represent the Mosler carbureter.

Pittsburg, Pa.—The Speedwell Automobile Co., formerly at 5986 Center avenue, has moved to 5922-24 Bond street, East End, where it has more than double the show room.

Wenatchee, Wash.—A new garage is being erected for the Metropolitan Motor Car Co. to cost $36,000. The building is of reinforced concrete 120 by 160 feet and two stories in height.

Omaha, Neb.—The Brooke Automobile Co., of Kansas City, has opend an agency in Omaha at 2318 Farnam street under the management of Paul C. Gee, formerly of Kansas City. The company will push the Lexington.

Philadelphia, Pa.—Walter S. Shawvan, of Chicago, has signed to manage the sales department of the Stoyle-Vogel Auto Co., distributer of the American for eastern Pennsylvania, New Jersey, Delaware, Maryland and the District of Columbia.

New York—H. M. Moyer, of 6109 Alder street, Pittsburg, Pa., has been allotted the agency for the Automobile air shock absorber in that city. Edward A. Dossert, eighth and Chestnut streets, Philadelphia, also has been appointed an agent for the same device.

Mystic, Conn.—Negotiations have been concluded for the consolidation of the Broughton Motor Works, of Stonington, and the West Mystic Boat Co. The new concern will locate in the plant at West Mystic formerly occupied by the West Mystic Mfg. Co., which recently went into the hands of a receiver. The West Mystic Boat Co. has bought a considerable part of the equipment of the West Mystic Mfg. Co.

Battle Creek, Mich.—The Bible-Lazelle Co. has been organized primarily to market the products of the Ideal Auto Lighter Co., whose entire output it has purchased.

Nashville, Tenn.—D. Kelly Roberts has accepted a proposition as a salesman for the Nashville Motor Car Co.; E. S. Whiting has gone with the Maxwell-Briscoe company.

Findlay, O.—L. E. Ewing, of Cleveland, a few days ago purchased the north side plant of the Findlay Axe and Tool Co., which will be converted into a motor car factory as soon as the building can be prepared for it. Present plans contemplate the organization of a company capitalized at $300,000.

Trenton, N. J.—The C. P. Weeden Motor Co. will soon erect a big garage at 155-157 Brunswick avenue. Mr. Weeden, of the Valentine & Weeden Co., has bought the Valentine interest in the motor business and will turn over the entire agency to his son, who has temporary quarters at 178 Brunswick avenue.

Hartford, Conn.—Work has begun on the new $80,000 addition to the Palace Automobile Station. When this addition is completed there will be available 25,034 square feet of floor surface. This new addition is being constructed just north of the old building and is to be 39 feet 6 inches by 178 feet. The cost of the new

Recent Incorporations

New York—Auto Owners & Operators Protective Association, capital stock $25,000; to manufacture and deal in motor cars and sundries; incorporators, Patrick J. McGrath, Ferdinand J. Hagen and Harry Miller.

Wilmington, Del.—Wissahicken Automobile Co., capital stock $25,000; incorporators, A. K. Taylor, W. H. Taylor, Richardson Park and H. G. Eastburn.

Hyde Park, Mass.—New England Motor Truck Co., capital stock $50,000; president, B. W. Piper, and treasurer, H. A. Henderson.

Camden, N. J.—Philadelphia Motordrome Association, capital stock $2,000,000; motor car race track and aviation field; incorporators, F. R. Hansell, G. H. B. Martin and J. A. MacPeak.

Rochester, N. Y.—The Campus Auto Garage, capital stock $1,000; incorporators, Eugene A. Stein, James Barry and Henry D. Shedd.

Albany, N. Y.—Albany Automobile Exchange, capital stock $5,000; incorporators, John A. O'Connor, Harry W. Nutter and Richard C. O'Connor.

Albany, N. Y.—Adirondack Auto and Livery Co., capital stock $2,500; directors, Albert H. Perkins, B. F. Vandervoort and Anson H. Higley.

Boston, Mass.—Waite-Robbins Motor Co., capital stock $25,000; to carry on a general motor car business; treasurer, F. R. Robbins.

Fort Worth, Texas—Allen Motor Car Co., capital stock $15,000; incorporators, J. D. Allen, W. G. Newby and H. S. Remey.

Announcements

structure with the land is estimated at $80,000.

Cleveland, O.—Collister & Sayle, who have been handling motor car supplies for the last 10 years, have opened a branch at 1920 Euclid avenue with H. S. Dewitt in charge.

Myersdale, Pa.—Julius Sturtevant, of New Kensington, Pa., and C. C. Konkle, of Pittsburg, Pa., are leaders in the new company which proposes to build a car factory to employ 200 people.

Atlanta, Ga.—The Georgia Motor Car Co. and the interests representing the National car handled by J. L. and J. J. McLendon, will be combined under the name of the Georgia Motor Car Co. with a capital stock of $50,000. It will be headed by G. W. Hanson, president of the former Georgia Motor Car Co.

Indianapolis, Ind.—The Single Tube Automobile and Bicycle Tire Co. of New Jersey has dismissed its suit in the United States district court at Indianapolis against the Kokomo Rubber Co., of Kokomo, Ind., the case having been settled out of court. The suit was brought to recover $5,606.78, alleged to be due the plaintiff for royalties.

Cleveland, O.—C. W. Hatch has accepted a position as salesman with the Perfection Spring Co. This company also has added to its selling force Z. B. Leonard, of South Bend, Ind., who will have charge of the sales in the middle west. This company also has recently completed two large buildings, which, together with its original building, gives it a floor space of 25,000 square feet and a capacity of 125 tons of springs per month.

Cleveland, O.—The Bever Automobile Co. has been formed in Cleveland and will locate on Euclid avenue, near East Fifty-fifth street.

Pottstown, Pa.—John G. Kugler, of the Kugler garage, has entered into partnership with Harry B. Kulp under the name of the Pottstown Motor Car Co.

Wichita, Kan.—Hockaday Brothers have opened a motor supply house in temporary headquarters, having disposed of their department of bicycles and sporting goods.

Barberton, O.—The Fourth Street Auto Co. was opened recently by Dr. G. E. Gardner. The concern acts as agent for the DeTamble and Halladay lines in three counties.

Spring Valley, Ill.—C. A. Miller & Co. will move from their present location in the course of 2 months and will occupy a two-story building with 12,000 square feet floor space.

Pittsburg, Pa.—The Automobile Auction and Commission Co. has established itself on Seventh avenue above Grand boulevard. It will maintain a garage and hold auction sales of cars every Friday.

Grove City, Pa.—The Hercules Specialty Co., which has been manufacturing woodenware for some time, has decided to turn its factory into a plant for the manufacture of light motor wagons. It will employ about 250 men.

Seattle, Wash.—Fred A. Wing, manager of the Broadway Automobile Co., announces that work will be commenced on an exclusive electric garage for the Detroit electrics, the building to be 50 by 128 feet on Broadway, between Olive and Howell streets.

Cleveland, O.—Thomas B. Jeffery & Co. announce the appointment of H. J. Twelvetree as the new manager for the Cleveland Rambler branch. Twelvetree, who will occupy the position formerly held by George Patterson, who has been appointed general manager of the Gaeth Automobile Co.

Buffalo, N. Y.—Papers incorporating the Dixon Motor Co., of Buffalo, have been filed, the directors being John C. Dixon, Arthur L. Dixon and Robert A. Myers. The company is capitalized at $15,000, but begins business with $7,500. At 776 Main street the company will handle the Velie.

South Bend, Ind.—The Home of the Hups is the name of a new garage which Black & Scranton opened Saturday at 225 South St. Joseph street, South Bend. The firm is composed of L. E. Black and D. C. Scranton and has operated out from the Frazier & Frazier garage. The firm handles only the Hupmobile and has nine counties in northern Indiana.

Carson City, Nev.—C. B. Melane has plans for 30 by 50 garage to be built of cement and corrugated iron.

Baltimore, Md.—The Foss-Hughes Motor Car Co., agent in Baltimore for the Pierce-Arrow, has moved to 810 North Charles street.

McKeesport, Pa.—C. E. Watson is preparing to open a garage in the Leppig building, Walnut street. He will handle the Overland and Marmon.

Kilbourn, Wis.—The Kilbourn Specialty Co. will erect a plant for the manufacture of brass and iron specialties, paying much attention to the motor car trade.

Orville, Cal.—The Orville Auto and Vehicle Co. has opened a new garage on Downer street with repair shop. O. N. Pauley and C. W. Brooks are interested.

Milwaukee, Wis.—The Wisconsin Motor Mfg. Co., of North Milwaukee, has increased its capital stock to $200,000. Charles H. Johns is president of the company.

Nashville, Tenn.—Howard, Cregor & Co. have moved into their new garage on Broadway, a brick livery stable that has been converted into one of the best garages in the city.

Chicago—The Tuthill Spring Co. has increased its manufacturing department by nearly 25 per cent and now is engaged in erecting a building, 778 Polk street, which will be 53 by 18.

Pittsburg, Pa.—The Bellevue Automobile Co. has been incorporated under Pennsylvania laws and is the first and only concern to start in the motor business in Bellevue, one of Pittsburg's best suburbs.

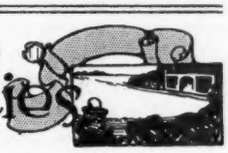
Buffalo, N. Y.—The Chisholm Sales Corporation, recently incorporated in Buffalo, has opened headquarters at 730 Main street, in that city. The concern will have the Buffalo agency for the National, Locomobile and Speedwell.

Toledo, O.—A lease has been closed for the third floor of the Snowflake Laundry building on Jefferson avenue, Toledo, for the use of the Champion company, a Boston concern engaged in the manufacture of spark plugs, which will remove to Toledo.

St. Louis, Mo.—The Major Motor Co. is one of the newest arrivals in the St. Louis field. The company leased the building at 1512 Locust street. The Major company has the agency for St. Louis and most of Missouri, also a part of Illinois, for the Pennsylvania Co. and the Herreshoff.

Erie, Pa.—The American Motor Sales Co. has secured a Pennsylvania charter, the members being H. E. Kies, W. L. Dodds and Lawrence Oothoubt, all of Erie, Pa. The salesroom and garage will be at 521 Front street. It has secured the agency for the American, Overland and Marion cars.

New Agencies



Fort Dodge, Ia.—Black & Kilpatrick, Everitt and Lambert.
Nashville, Tenn.—Hermitage Auto Co., Cole and Empire.
Baltimore, Md.—Automobile Equipment Co., Kisselkar.
Alberta, Can.—F. H. Grasswick, Haynes.
Greenville, O.—M. Crumrine, Great Western.
Montpelier, Ida.—Joseph Nelson, Great Western.
Pittsburg, Pa.—Whiting Sales Agency, Black Crow.
Omaha, Neb.—John Deere Plow Co., Wilcox truck.
San Francisco, Cal.—Pioneer Auto Co., Wilcox truck.
Kansas City, Mo.—McGee-Huckell Motor Car Co., Wilcox truck.
Duluth, Minn.—Russell Motor Car Co., Wilcox truck.
Chicago—Wilcox Motor Car Co., Wilcox truck.
Boston, Mass.—C. J. Fisher, Reliance truck.
Indianapolis, Ind.—Inter-State Motor Sales Co., Inter-State.
Indianapolis, Ind. — American Garage, Royal.
Cambridge, Wis.—Hansen & Tellefson, Buick, Ford, Oakland, White and Oldsmobile.
Beloit, Wis.—Vale Automobile Co., Marion.
Columbus, O.—Michael Abel, Baker electric.
Cleveland, O.—Hugh Miller, Palmer & Singer.
Baltimore, Md.—F. W. Sanruck, Couple-Gear and Buffalo trucks.

Legal Lights and Side Lights

AT the present time several of the large cities are busily engaged in wrestling with the control of traffic proposition. New York might be said to have graduated in this department, and its system is held up as a model of its kind throughout the United States, but other metropolises in the country like Chicago and Philadelphia, still have much to learn in this respect. But they have not given up hopes of ultimately being in New York's class, and with this end in view both the Windy City and the City of Brotherly Love have been amending the regulations which are supposed to control traffic on the busy streets.

It wasn't so very long ago that Chicago took its initial step in this direction, first placing a squad of mounted police on the city streets which did yeoman service from the start, and opened the eyes of the city authorities to the possibilities of the system. This was followed by the placing of police on the different corners inside the loop district, each cop armed with a whistle by which he controlled the ebb and flow of the vehicular traffic. No vehicle is allowed to cross a street north and south while the traffic is coming from the east and west, and vice versa. It took some time to educate the Chicagoans along these lines, but gradually they have been brought to see the wisdom of the course, and to a great extent the congestion in the down-town district has been relieved by these measures.

Chicago's Precautions

Chicago, however, wishes to go farther in this direction, and with that end in view Chief of Police Steward called a meeting of interested parties, at which were present representatives not only of the motor industry, but the teamster interests as well. All was harmony at this meeting, and the result of the conference was a set of rules which is expected to eventually place Chicago in New York's class. Chief Steward recognizes that these regulations still are in an elementary state, so he does not intend to make the new rules permanent, it being his idea to amend them from time to time as the people become educated to the modern method of handling traffic.

Most interesting in the new code is the clause which pertains to pedestrians, it being the chief's intention to control them just the same as he does the vehicles, although, of course, he cannot adopt such radical measures like arresting any of them for violations of the rules as he does with teamsters and chauffeurs. However, he rules that pedestrians should remember that while they have a right to cross the street in safety, the streets are primarily intended for vehicles, and he insists that the pedestrians should, therefore, cheerfully conform to all the traffic rules and thereby contribute not only to their own safety and comfort, but facilitate the movement of traffic as well. Pedestrians are told never to step from the sidewalk to the street without first looking in each direction for approaching vehicles; they never should cross the streets except at regular crossings and at right angles; they should be particularly cautious in crossing alleys, and above all, they are told to wait for the signal of traffic policemen wherever one is stationed, and move in the direction of the traffic only. The chief is most emphatic about this last point, it being his belief that eventually he can so control the pedestrians that they will pause at the policeman's whistle just as does the vehicle traffic.

Code Deals with Street Cars

The code also deals with street cars, and concedes that they have the right of way between cross streets over all other vehicles, and it is ordered that drivers of other vehicles proceeding upon the track in front of the street car shall turn out upon the signal of driver or conductor. No vehicle or street car can so occupy any street as to interfere with or interrupt the passage of other cars or vehicles, and during blockades or stoppages a clear space of 10 feet must be kept open between cars opposite the alley, or center of the block if there is no alley.

There is one clause in the code that does not make much of a hit with motorists, that being the section which ordains that horse-drawn vehicles have the right of way over power-driven vehicles, street cars excepted. This may work out all right in time, but still the motorists cannot see why such discrimination should be shown. Police, fire department, fire patrol, traffic emergency, United States mail vehicles and ambulances have the right of way in any street and through any procession.

No one under 16 years of age will be permitted to drive any vehicle, which will be a good clause if enforced because of eliminating the small boy hired by a grocer or meat market man, who generally is a reckless youngster and pays no heed to the rights of others on the city streets. It also is ordered that all vehicles must carry lights at night, which if enforced will be a point for which motorists long have fought. Chicago recently enacted a tail-light ordinance which is being gradually observed and which has resulted in a reduction in the number of accidents on the street. However, the police are somewhat lax in seeing that this law is obeyed, permitting many of the smaller horse-drawn vehicles to run without lights at night. But with the new set of regulations enforced it is believed that more vigilance will be shown.

The rules also stipulate as to the control of horses and insist that no equine shall be left unattended unless securely fastened or unless the wheels of the vehicle are securely fastened and the vehicle itself is of sufficient weight to prevent its being dragged with the wheels so secured.

The south park commissioners in Chicago also have taken a hand in the control of traffic and this week the new laws went into effect. It is forbidden to leave a vehicle standing on a boulevard more than 30 minutes without a driver and furthermore it is stipulated that the vehicle must be in front of the building in which the owner or driver of the rig is engaged either on business or calling. Only one line of vehicles can stand by the curb, while it is strictly forbidden to change tires or make any repairs whatsoever on Michigan avenue north of Twenty-sixth street. These rules apply at night as well as days and also affect the dealers who have permitted their demonstrators to stand on the street.

Realizing that the unprecedented growth of the trade and the consequent enormous increase of self-propelled vehicle traffic on the city's streets must sooner or later result in a congestion on the motor-traveled highways unless steps are taken to keep it within bounds, the officials of the department of public safety of Philadelphia have begun to formulate a system of rules to govern all sorts of vehicular traffic. The east-on-Chestnut-and-west-on-Walnut rule has been in force for a year and works well; that regulation will ultimately be extended to other streets as the traffic increases. Backing cars up to the sidewalk has now taken up the attention of the authorities, and they have decided that every class of vehicle—self-propelled and horse-drawn alike—must now stop parallel with the curb, as close to the sidewalk as possible, and in a single line; two or more cars abreast is hereafter prohibited. Keep to the right around the city hall, which formerly obtained only till 7 p. m., is now extended till after midnight. Hereafter motor cars, motor cycles and bicycles will have the center of the main-traveled streets, such as Broad, for example; wagons, drays, trucks and other slow-moving vehicles moving along nearer the curbs. Diagonal cuts across the lines of traffic by a driver wishing to enter a cross-street are now strictly tabooed; the driver must cross to the far side of the street he wishes to enter, make a slow right-angled turn in the direction desired, and proceed.